

PRACE ZOOLOGICZNE
POLSKIEGO PAŃSTWOWEGO MUZEUM PRZYRODNICZEGO.
ANNALES ZOOLOGICI MUSEI POLONICI HISTORIAE NATURALIS.

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**Przyczynki do poznania rodziny
Lymnaeidae. II i III.**

**Contributions to the study of the Family
Lymnaeidae. II and III.**

II.

O kilku błotniarkach altajskich.

Some new data to the knowledge of the Altai *Lymnaeae*¹⁾.

Mr B. N. Schwanwitsch has kindly delivered me for study the *Lymnaeae* collected by him in summer, 1916, from the lake Markokul in the Altai mountains. According to the information concerning the place, where they were captured, given by B. N. Shwanwitsch, „the lake Markokul is about 37 km. long and 16 km. wide. The depth is, according to Sapojnikov, about 80 feet (24,4 m) and according to Sedelnikov — 105 feet (32 m). The height above sea level, according to Sapojnikov, 2000 m., and according to Sedelnikov — 4616 ft. (1407 m.). The molluscs were taken on the western shore of the lake, some dozens of metres from the source of the riv. Kaldgir. The shore is at this place slopy, the bed stony with slime. A good

¹⁾ This paper was together with part I of these „Contributions“ read 1917 before the Academy of Sciences of Petersburg by the late prof. V. Zalenskij member of Academy, and was to be published in the „Travaux d. Labor. zool. d'Acad. Sc. Petrogr.“. The great events of those years greatly delayed the printing; the publishers changed also. This paper appears as it was written in 1917.

many water plants. The capture was made near the very shore, at a depth not exceeding 2 feet" (0,61 m).

Although the material collected has suffered considerably during the voyage, the shell being intact only in one specimen, it presents a great value, as the animals were preserved in alcohol (not empty shells), on account of which they can be treated anatomically. I am deeply indebted to B. N. Schwanwitsch for providing me with this valuable material.

The animals collected belong to two species:

1. *Lymnaea stagnalis* L.

Two not quite adult specimens. Notwithstanding the fact that both specimens are not yet adult and both are broken, the elongation of their shells is seen at a glance; all their characteristic features are visible in the accompanying photographs, therefore I shall abstain from describing them [Plate XXIX, fig. 1].

According to B. N. Schwanwitsch, the shore at the point, where the animals were captured, is not protected by any bar from the waves breaking against it, whereas in such a large lake they must sometimes be rather strong. As it is known, in lakes, and especially in places open to the influence of waves, *L. stagnalis* assumes a very shortened form, morpha *lacustris* Stud. Therefore the elongated shape of our specimens is worthy of special consideration. It must, however, be borne in mind that B. N. Schwanwitsch found at this point only two specimens of this species, therefore it may be possible that they have arrived there occasionally, owing to passive, or active migration.

The radula presents no special features. I can only mark that the central tooth in one of them is provided, besides the usual cuttig point, laterally with a supplementary one [Pl. XXX, f. 8].

The first lateral tooth is in both specimens tricuspid (what was established by Dybowski (2) for the European *L. stagnalis*). Baker (1) has found in the American representatives of this species that all the lateral denticles may be bicuspid. Personally I have found in *L. stagnalis* from lake Lemán that both these views are correct, i. e. in this species are encountered radulae, the first lateral tooth of which may be provided with a well developed entocone, or be devoid of it, these forms also

being connected by transitions [cp. my paper 3]. The remaining teeth are normal. Both radulae are characterized by the following formulae:

$$1) \frac{19}{5-1} \frac{3}{4} \frac{4}{3} \frac{13}{2} \frac{1}{3} \frac{c}{2} \frac{1}{3} \frac{13}{2} \frac{4}{3} \frac{3}{4} \frac{19}{5-1} = 40 - 1 - 40$$

$$2) \frac{23}{5-2} \frac{2}{4} \frac{5}{3} \frac{15}{2} \frac{1}{3} \frac{c}{1} \frac{1}{3} \frac{15}{2} \frac{5}{3} \frac{2}{4} \frac{23}{5-2} = 46 - 1 - 46$$

The Genital apparatus. The male genital duct fully corresponds to the type of *L. stagnalis* described by many authors. The proximal part of prostata is flattened and dilated, whilst the distal portion widens into a very large pyriform formation from the middle of which the vas deferens is given off [Pl. XXX fig. 6]. Both penis-sacs also correspond to the existing description: their length is as follows:

I. Penis-sac.

10.0 mm.

8.5 mm.

II. Penis-sac.

2.75 mm.

2.5 mm.

The ratio of length of the first sac to the second is about $1 : \frac{1}{3}$ (the measurements taken on material preserved in alcohol can never be quite exact, on account of inevitable contraction of muscles of the penis-sacs). The musculature [Pl. XXXI, fig. 10—11] of this organ varies with in the usual limits.

As it is usual in *stagnalis*, the retractor of the second penis-sac presents a branch of the retractor of the first penis-sac. The only point that can be marked here, contradictory to the data of Baker, is the fact that the protractors on the right side of one specimen [fig. 11], although present in a smaller number than in the second specimen [fig. 10] are themselves smaller and finer than the corresponding muscles in fig. 10, whereas, according to Baker (1, p. 143), they ought to be larger.

But if we turn now to the female genital duct, we shall meet here with an interesting phenomenon, which I happened to see for the first time. Namely, in this case the pyriform body („first accessory albuminiparous gland“ of Baker), instead of to form as usually one whole organ, is divided into

two distinct portions separated by a deep constriction, thus assuming the appearance of two separate glands. At the first glance I thought that the posterior part of the pyriform body presented the nidamental gland („second accessory albuminiparous gland“ of Baker), but I was immediately undeceived, as the latter gland was normally developed (in the figure 6, Pl. XXIX. these organs are, of course, not depicted *in situ*, but separated and extended in order to render them more demonstrative). Such a division of the pyriform body by means of constriction into two parts was observed in both specimens, although in the second the posterior part was considerably smaller than the anterior.

The remaining parts of the female genital ducts are normal.

I cannot definitely decide how to explain this deviation in the form of the pyriform body. Whether it is constant for the Altai *L. stagnalis* — or has appeared only occasionally in two specimens with an abnormal development of this organ — or whether this modification is peculiar only to young forms — all these questions must remain unanswered meanwhile, on account of scantiness of material. It must be noted, however, as I shall mention below, that I had already previously encountered a similar modification in one European specimen; it should also be borne in mind that this organ is in general very variable, as I have pointed out in one of my preceding works, and I have, therefore, never used it for systematic purposes.

2. *Radix ovata* Drap.

This species is represented by many specimens, most of which are, however, devoid of the shell, as it had been broken. Some more or less preserved shells are showed in the photograph [Pl. XXIX fig. 4]. The radula is normal. I am giving as example the following formulae:

$$1) \frac{21}{6-2} \frac{1}{5} \frac{1}{4} \frac{13}{3} \frac{c}{1} \frac{13}{3} \frac{1}{4} \frac{1}{5} \frac{21}{6-2} = 36 - 1 - 36$$

$$2) \frac{19}{6-3} \frac{2}{5} \frac{1}{4} \frac{12}{3} \frac{c}{1} \frac{12}{3} \frac{1}{4} \frac{2}{5} \frac{19}{6-3} = 34 - 1 - 34$$

$$3) \frac{22}{6-2} \frac{2}{4} \frac{13}{3} \frac{c}{1} \frac{13}{3} \frac{2}{4} \frac{22}{6-2} = 37 - 1 - 37$$

The genital apparatus is not developed in many specimens, owing to strong infection by *rediae*. In the presence of an enormous number of *rediae*, which sometimes literally fill up the entire body of the mollusc, the albuminiparous gland, uterus and nidamental gland bear the aspect of a thin platelet (usually strongly pigmented), whilst the prostata forms a narrow, long body of cylindrical shape. The dimensions of the whole genital apparatus in this case are insignificant (cp. in Pl. XXX the dimensions of the genital apparatus in fig. 9 with the normal apparatus in fig. 7 representing a form of the same size). It is obvious that such an apparatus cannot function. It would be interesting to compare the histological structure of such a reduced apparatus with the normal one. Of course, various gradations are to be found between such that are reduced extremely and the normal.

The structure of the genital apparatus of non-infected specimens has clearly demonstrated that all the specimens belong to the species *R. ovata* Drap. and present the form which I have named form *B* (4). This fact is very interesting for the following reasons: *R. ovata* named by me form *A* was taken from lake Lemán in Switzerland. Afterwards, in Poland (in the former „government“ of Radom and in the neighbourhood of Warsaw), later in the vicinity of Petersburg and in Crimea, I found only the form *B*. On account of this the question arises: may not form *A* be regarded as a mountain morpha¹⁾ of form *B*. Now this question can be solved. As form *B* lives in the lake Markokul on the Altai, it is obvious that form *A* cannot be regarded as the mountain morpha of form *B*. However, I have also found form *A*, on the North (on the Murman coast), and the question has again arisen: does not form *A* present a frigid morpha? The occurrence of form *B* on the Altai again gives a negative answer to this question.

27 January 1917.

¹⁾ Under the term „morpha“ I mean here, according to Semenov-Tjan-Sanskij (5), a taxonomical unit differing from the type in bearing non-hereditary characters.

III.

Blotniarki z Okręgu Wojska Dońskiego.

Lymnaea stagnalis and *Radix auricularia* from the Province of the Don Cossacks.

On my request Mr. B. V. Vlastov collected in summer of 1916 some *Lymnaeae* in the vicinity of Novochoerkassk and delivered them to me for study, for which I am very grateful to him.

I gladly set myself to the study of two of the species delivered to me by B. Vlastov. I wished to ascertain, whether there existed any difference in the structure of the genital organs of these forms, as compared with the same forms from Middle Europe. The study of representatives of the family *Lymnaeidae* taken from as far as possible various regions gives material for the solution of the question as to how far these forms are variable in their essential characters—as such I consider the structure of the genital apparatus—and produces a stronger foundation for the limitation of the different species of this family, which is exceedingly variable as regards its shell.

All the *Lymnaeae* obtained by B. V. Vlastov belong to two species: *Lymnaea stagnalis* and *Radix auricularia*.

1. *Lymnaea stagnalis* L.

This species is represented in the collection by two conchological forms. On one hand, there are very large specimens (2 specimens measured 64 and 56 mm. in height, with 7 windings cp. Pl. XXIX fig. 5), on the other hand,—small ones (40 and 35 mm. in height, with 7 windings (Pl. XXIX fig. 2).

The former, large specimens (fig. 5) were taken from lake Borisovo, lying 3—4 km. from Novochoerkassk in the floodable parts of the rivers Don, Aksai and Tuzlow. The lake is about 2 kilometers in diameter, on the bank there are overgrowths of macrophyta *Thypha*, *Scirpus*, *Sagittaria*, *Alisma*, *Ceratophyllum*), extending from the shore to the middle of the lake on about $\frac{1}{4}$ km. The slime is black, viscous.

This kind of lake presents an ideal habitat for our species; taking into account the abundant vegetation and absence of undulation, therefore, there is nothing surprising in the fact that *L. stagnalis* reaches considerable dimensions in this lake.

The second, small form (fig. 2) was taken in an inundated pool in the floodable parts of the same rivers in the vicinity of Novoherkassk. This pool is about $\frac{1}{2}$ km. long and about 12 metres wide. The depth reaches 25 cm. The bottom is covered with black slime. The water is usually turbid, owing to cattle, children etc.

The shell of these small molluscs is covered exteriorly with a black efflorescence, which is, probably, due to the turbid state of the water.

The radula in general resembles that of the same species in Middle European forms.

The following are the formulae of the radula of two large specimens:

$$1) \frac{22}{5-2} \frac{6}{3} \frac{21}{2} \frac{1}{3} \frac{c}{1} \frac{1}{3} \frac{21}{2} \frac{6}{3} \frac{22}{5-2} = 50 - 1 - 50$$

$$2) \frac{17}{5-2} \frac{6}{4} \frac{3}{3} \frac{21}{2} \frac{1}{3} \frac{c}{1} \frac{22}{2} \frac{3}{3} \frac{6}{4} \frac{17}{5-2} = 48 - 1 - 48$$

The following are the formulae of two small specimens:

$$3) \frac{20}{5-1} \frac{4}{3} \frac{15}{2} \frac{1}{3} \frac{c}{1} \frac{1}{3} \frac{2}{2} \frac{2}{3} \frac{11}{2} \frac{4}{3} \frac{20}{5-1} = 40 - 1 - 40$$

$$4) \frac{27}{5-2} \frac{1}{3} \frac{20}{2} \frac{1}{3} \frac{c}{1} \frac{1}{3} \frac{20}{2} \frac{1}{3} \frac{27}{5-3} = 49 - 1 - 49$$

In the formulae given above the following particulars are noteworthy: all the central teeth are moncuspid; the first lateral teeth are all tricuspid, with the exception of one tooth on one side in the second specimen, in which a certain asymmetry is obtained, as the corresponding tooth on the other side is provided with three cusps; an asymmetry is also visible in the dental formula of the third specimen, in which on one side all the lateral teeth, except the first one, are bicuspid, whereas on the

opposite side amongst them are found two tricuspid teeth; another striking feature is the great difference in the total number of teeth between the two small specimens, notwithstanding the small difference in the size of the animal itself (40—1—40 and 49—1—49), and the absence of such a difference between the second small specimen and both large ones. All this facts again confirm my opinion of the great variability of the radula in the same species.

The genital apparatus both of the small and large specimens is typical for the species *L. stagnalis*, therefore I shall not describe it. I should only mention that in one of the large specimens I have found a weakly expressed constriction in the middle of the pyriform body, resembling the constriction described in the preceding chapter in the Altai representatives of this species. In this case however, the constriction was much weaker expressed.

The following is the length of the penis-sacs in the large specimens:

I	II
22 mm.	5,5 mm.
17 mm.	5,0 mm.

In the small specimen the length of the I-st was 9 mm., II—3,25 mm.

The variation of the muscles of both penis-sacs is represented in the accompanying figures Plate XXXI, fig. 12—13, referring to the large forms, and fig. 14 to the small.

2. *Radix auricularia* L.

All the specimens of this species were collected in the river Grushevka, near the Persianovka farm of Novocherkassk district. The river is at this point 6,5 m. wide, the depth near the end of the overgrowth is 1,75 m. The bottom is covered with black, viscous slime with a slight smell of hydrogen sulphite. Near the shore there are overgrowths of *Phragmites* and some *Ceratophyllum*. The water in the overgrowths is nearly stagnant. The molluscs were taken from the weeds [Pl. XXIX, fig. 3].

The radula is characteristic of *R. auricularia*. The formulae of two radulae examined are as follows:

$$1) \frac{22}{4-1} \frac{12}{3} \frac{c}{1} \frac{12}{3} \frac{22}{4-1} = 34 - 1 - 34.$$

$$2) \frac{25}{5-1} \frac{11}{3} \frac{c}{1} \frac{11}{3} \frac{25}{5-1} = 36 - 1 - 36.$$

It must be noted that in the lateral teeth there are rarely more than 4 cusps, and 5 are met only in few.

The structure of the genital apparatus is so typical for *R. auricularia*, that I could not find any deviations from the structure of this apparatus in *R. auricularia* from lake Leman and from Poland.

February 27 1917.

LIST OF LITERATURE QUOTED.

1. Baker F. C. The Lymnaeidae of North and Middle America. Chicago Acad. Sc. Spec. Publ. № 3, 1911.
2. Dybowski Wł. Studien über die Zahnplatten der Gattung Limnaea. Bull. Soc. Natur. Moscou, t. LIX, 1884.
3. Roszkowski W. Contribution à l'étude des Limnées du lac Léman. Rev. Suis. de zool. XXII, 1914.
4. — Przyczynek do znajomości anatomji narządów płciowych u błotniarek podrodzaju Gulnaria Leach. Spraw. Tow. Nauk. Warsz. VII, 1914.
5. (Семенов-Тянь-Шанский) Семеновъ-Тянь-Шанскій. Таксономическія границы вида. Зап. Имп. Акад. Наукъ, С. VIII, Т. XXV, № 1.

EXPLANATION OF PLATES.

Plate XXIX.

- Figure 1. *Lymnaea stagnalis* L. Lake Markokul (Altai Mountains).
 " 2. *Lymnaea stagnalis* L. Pool in the vicinity of Novoherkassk.
 " 3. *Radix auricularia* L. River Grushevka (Novoherkassk district).
 " 4. *Radix ovata* Drap. Lake Markokul (Altai Mountains).
 " 5. *Lymnaea stagnalis* L. Lake Borisovo (Novoherkassk district).

Plate XXX.

- Figure 6. Genital apparatus of *Lymnaea stagnalis* L. (Lake Markokul).
 BC = bursa copulatrix; C = canal of the bursa; CP = pyriform body; NG = nidamental gland; P = prostata; U = uterus; V = vagina; VD = vas deferens.

Figure 7. Genital apparatus of *Radix ovata* Drap. (Lake Markokul).
A = albuminiparous gland.

" 8. Teeth of Radula of *Lymnaea stagnalis* (Lake Markokul) c =
= central tooth; 1—2 = first resp. second lateral tooth.

" 9. Reduced (infection by *rediae*) genital apparatus of *Radix ovata*
Drap. (lake Markokul).

Plate XXXI.

Figure 10—14. *Lymnaea stagnalis* L. Variation in muscles of male organ.

" 10—11. Specimens from the lake Markokul.

" 12—13. " " " Borisovo.

" 14. Specimen from the pool in the vicinity of Novocherkassk.

STRESZCZENIE.

W pracy № II autor rozpatruje muszlę, budowę tarki i narządów płciowych dwóch egzemplarzy *Lymnaea stagnalis* i wielu osobników *Radix ovata* forma B, pochodzących z jeziora Markokul (Altaj); w pracy № III omawia przedstawicieli pierwszego z wymienionych gatunków i *Radix auricularia* z okolic Nowoczerkaska.

JANUSZ DOMANIEWSKI.

Przegląd form rodzaju *Picumnus* Temm.

Übersicht der Formen der Gattung *Picumnus*
T e m m.

Picumnus Temminck.

Picumnus Temminck 1825, Planch. Col. livr. 62, pl. 371; [Genotypus
Picumnus cirrhatus Temm.].

1. *Picumnus rufiventris* (Bon.).

Asthenurus rufiventris Bonaparte 1837, Proc. Zool. Soc. Lond., p. 120;
[terra typica: Ecuador].

Picumnus rufiventer Reichenbach 1854, Scans. Picinae, p. 345.

Vorkommen: Ecuador und Peru. Nach Snethlage auch in westlichen Teile Brasiliens (in Mus. Goeldi 1 juv. aus Rio Purus). Hellmayr aber schreibt: „Dieser seltene Specht ist bisher nur aus dem östlichen Ecuador (Sarayacu, Rio Napo) und Peru bekannt (Arch. Naturg., 1919, p. 118).

2. *Picumnus cinnamomeus cinnamomeus* Wagl.

Picumnus cinnamomeus Wagler 1829, Isis, p. 646; [terra typica: Cartago, Columbia].

Vorkommen: Nord- und Mittel-Columbia, Venezuela.

3. *Picumnus cinnamomeus venezuelensis* Cory.

Picumnus venezuelensis Cory 1913, Field. Mus. Nat. Hist., Orn. Ser. 7, p. 288;
[terra typica: Encontrados, Zulia, N. W. Venezuela].

Vorkommen: N. W. Venezuela.

4. *Picumnus castelnaui* Malh.

Picumnus castelnaui Malherbe 1862, Mon. Picidae II, p. 281; [terra typica: Sarayacu a. Ucayali, Peru].

Picumnus castelnaui Sclater u. Salvin 1866, Proc. Zool. Soc. Lond., p. 196.

Vorkommen: Peru, Ecuador.

5. *Picumnus leucogaster* Pelz.

Picumnus leucogaster Pelzein 1870, Orn. Bras., p. 241; [terra typica: Rio Branco, N. Brasilien].

Vorkommen: Nord Brasilien (Rio Branco, Rio Canamé), nördlich bis zum mittleren Orinoco in Venezuela.

6. *Picumnus limae* Snethl.

Picumnus limae Snethlage 1924, Journ. f. Orn., 72 Jahrg., p. 448; [terra typica: Ceará, Ladeira Grande, N. O. Brasilien].

Vorkommen: N. O. Brasilien.

7. *Picumnus fuscus* Pelz.

Picumnus fuscus Pelzein 1870, Orn. Bras., p. 335; [terra typica: Rio Guapore, W. Matto Grosso, Brasilien].

Vorkommen: Rio Guapore (westliche Teile von Matto Grosso) in Brasilien.

8. *Picumnus temminckii* Lafr. [Taf. XXXII, Fig. 5].

Picumnus temminckii Lafresnaye 1845, Rev. Zool. pp. 6, 111; [terra typica: Paraguay].

Vorkommen: N. O. Argentina, Paraguay, S. Brasilien (Rio Grande do Sul, S-ta Catharina, Paraná, São Paulo).

Verzeichnis der sich im Polnischen Naturhistorischen Staatsmuseum in Warschau befindenden Vertreter der vorstehenden Art:

♂ 12 VI 1883, Taquara, Rio Grande do Sul, coll. Ihering.

♀ 17 VII 1911, Vera Guarany, Paraná, coll. Chrostowski.

♀ 29 I 1923, Rio Paraná, Salto Guayra, Paraná, coll. Chrostowski et Jaczewski.

♂ 19 II 1923, " " " " " " " " " " " "

♀ 3 XII 1922, Rio Ivahy, Salto da Pindahyba, Paraná, " " " " " " " " " " " "

- ♂ 20 III 1922, Rio da Arreia, Faz. Ferreira Paraná coll.
Chrostowski et Jaczewski.
♀ 18 II 1922, São Domingo, Faz. Concordia, Paraná coll.
Chrostowski et Jaczewski.
♂ 21 II 1922, São Domingo, Faz. Concordia, Paraná coll.
Chrostowski et Jaczewski.
♂ 22 VIII 1922, Rio Ubasinho, Apucarana, Paraná, coll.
Chrostowski et Jaczewski.
♀ 9 II 1922, Rio Claro, Serra da Esperança, Paraná, coll.
Chrostowski et Jaczewski.
♀ 30 III 1922, Fazenda Durski, Paraná, coll. „
♂ 15 IV 1922, Banhado, „ „ „ „
♀ 19 IV 1914, Antonio Olyntho, „ „ Chrostowski.
♀ 1 IV 1914, „ „ „ „ „
♀ 3 V 1914, „ „ „ „ „
♂ 9 VI 1914, „ „ „ „ „
♂ 15 VII 1914, „ „ „ „ „

9. *Picumnus iheringi* Berl. [Taf. XXXII, Fig. 4].

Picumnus jheringi Berlepsch 1884, Ibis, p. 441; [terra typica: Rio Grande do Sul, Brasilien].

Vorkommen: Süd Brasilien (Rio Grande do Sul, Paraná).

Verzeichnis der sich im Polnischen Naturhistorischen Staatsmuseum in Warschau befindenden Vertreter der vorstehende Art.

- ♂ Curityba, Paraná, coll. Siemiradzki.
♀ 15 III 1914, São Lourenço, Paraná, coll. Chrostowski.
♂ 4 X 1914, Antonio Olyntho, „ „
♂ 28 VI 1914, „ „ „ „
♀ 2 VI 1914, „ „ „ „
♀ 28 VI 1914, „ „ „ „
♂ 23 IV 1922, Rio Jordão bei Guarapuava, Paraná, coll.
Chrostowski et Jaczewski.
♂ 4 V 1922, Invernadinha bei Guarapuava, Paraná, coll.
Chrostowski et Jaczewski.
♀ 4 V 1922, Invernadinha bei Guarapuava, Paraná, coll.
Chrostowski et Jaczewski.
♂ 10 V 1922, Invernadinha bei Guarapuara, Paraná, coll.
Chrostowski et Jaczewski.

- ♀ 7 III 1922, Rio Putinga, Faz. Firmiano, Paraná, coll.
Chrostowski et Jaczewski.
- ♂ 12 III 1922, Rio Putinga, Faz. Firmiano, Paraná, coll.
Chrostowski et Jaczewski.
- ♀ 25 II 1922, São Domingo, Faz. Concordia, Paraná, coll.
Chrostowski et Jaczewski.
- ♂ 21 III 1922, Rio da Arreia, Faz. Ferreira, Paraná, coll.
Chrostowski et Jaczewski.
- ⊖ 17 III 1922, Rio da Arreia, Faz. Ferreira, Paraná, coll.
Chrostowski et Jaczewski.
- ♂ 20 III 1922, Rio da Arreia, Faz. Ferreira, Paraná, coll.
Chrostowski et Jaczewski.
- ♂ 20 III 1922, Rio da Arreia, Faz. Ferreira, Paraná, coll.
Chrostowski et Jaczewski.
- ⊖ 21 III 1922, Rio da Arreia, Faz. Ferreira, Paraná, coll.
Chrostowski et Jaczewski.
- ♂ 22 V 1922, Cará Pintada, Paraná, coll.

10. *Picumnus cirrhatus cirrhatus* Temm.

Picumnus cirrhatus Temminck 1825, Pl. Col. livr. 62, fig. 1; [terra typica: S. O. Brasilien].

Picumnus cayennensis Malherbe 1862, Mon. Picidae IV, pl. 120, fig. 1—2.

Picumnus azarae Cabanis u. Heine 1863, Mus. Hein., IV, p. 20.

Vorkommen: S. O. Brasilien (Bahia, Minas Geraes, Espírito Santo, São Paulo, Paraná).

11. *Picumnus cirrhatus pilcomayensis* Harg.

Picumnus pilcomayensis Hargitt 1891, Ibis, p. 606; [terra typica: Rio Pilcomayo, Paraguay].

Vorkommen: Paraguay.

12. *Picumnus cirrhatus tucumanus* Hart.

Picumnus cirrhatus tucumanus Hartert 1909, Nov. Zool. XVI, p. 229; [terra typica: Rio Colorado, Tucuman, Argentina].

Vorkommen: N. Argentina.

13. *Picumnus cirrhatus macconnelli* Sharpe.

Picumnus macconnelli Sharpe 1901, Bull. Brit. Orn. Club XII, p. 4; [terra typica: Britisch Guiana].

Picumnus amazonicus Snethlage 1906, Orn. Monatsb. XIV. p. 60.

Vorkommen: Ins. Marajo, Britisch Guiana, N. Brasilien (Pará).

14. *Picumnus varzeae* Snethl.

Picumnus varzeae Snethlage 1912, Orn. Monatsb. XX, p. 154; [terra typica: Fazenda Paraíso bei Faro, Pará].

Vorkommen: Rio Yamunda (Pará), N. Brasilien.

15. *Picumnus spilogaster* Sund.

Picumnus spilogaster Sundevall 1866, Consp. Av. Picin., p. 100; [terra typica. Britisch Guiana].

Vorkommen: Britisch Guiana.

16. *Picumnus pallidus* Snethl.

Picumnus pallidus Snethlage 1924, Journ. f. Ornith., Jahrg. 72, p. 449; [terra typica. Flor do Prado b. Quatipuru, N. O. Brasilien].

Vorkommen: Campos von Quatipurú (Bragança) an der S. Küste des Staates Pará.

17. *Picumnus d'orbignyianus* Lafr.

Picumnus d'orbignyianus Lafresnaye 1845, Rev. Zool., p. 7; [terra typica: Bolivia].

Vorkommen: Bolivia und N. Argentina.

18. *Picumnus sclateri sclateri* Tacz. [Taf. XXXII, Fig. 1].

Picumnus sclateri Taczanowski 1877, Proc. Zool. Soc. Lond., p. 327 [terra typica: Lechugal, N. W. Peru].

Vorkommen: N. W. Peru (prov. Tumbes, Piura), S. O. Ecuador (prov. Loja, prov. del Oro).

Typus befindet sich in Polnischen Naturhistorischen Staatsmuseum in Warschau: ♀ ad 28. III. 1876, Lechugal, Rio Zarumilla, N. W. Peru, coll. J. Sztolcman.

19. *Picumnus sclateri parvistriatus* Champ.

[Taf. XXXII, Fig. 2].

Picumnus sclateri Berlepsch u. Taczanowski, Proc. Zool. Soc. Lond. 1883, pp. 537, 570.

Picumnus sclateri Taczanowski u. Berlepsch, Proc. Zool. Soc. Lond. 1885, p. 122.

Picumnus sclateri parvistriatus Chapman 1921, Am. Mus. Novit., № 18, p. 6.; [terra typica: Daule, Prof. Guayas, Ecuador].

Vorkommen: Ecuador (prov. Guayas, Manavi). Die Exemplare aus Gayaquil (coll. Sztolcman u. Siemiradzki) gehören natürlich zu dieser Form.

- | | |
|---|--|
| ♂ | 8. VIII, 1882, Guayaquil, Ecuador, coll. Siemiradzki |
| ♀ | 25. VIII. 1882 " coll. Sztolcman |
| ⊖ | 20. VIII. 1882 " " |
| ⊖ | 23. VIII. 1882 " " |

20. *Picumnus irenae* spec. nov. [Taf. XXXII, Fig. 3 u. 8].

Picumnus jelskii [partim] Berlepsch u. Stolzmann, Proc. Zool. Soc Lond. 1902, p. 34.

Das Exemplar, welches mich veranlasst eine neue Art vorzuschlagen, wurde von Berlepsch und Sztolcman irrtümlich als *Picumnus jelskii* bezeichnet. Dasselbe stellt einen jungen Vogel dar und erscheint dem *Picumnus sclateri* ähnlich, hat jedoch einen dunkleren Mantel und breitere (rahmfarbene) Aussensaume der Armschwingen. Der Oberkopf ist schwarz, nur über und hinter den Augen, sowie auf dem Hinterkopfe sind längliche weisse Streifen vorhanden. Der ganze Unterkörper ist quergestreift; diese Querstreifen sind ganz schwarz und nicht Schwarzbräunlich wie bei *Picumnus sclateri*. Die regulärsten streifen treten auf der Brust auf; die Streifen des Bauches sind nicht so regulär und die weisse Farbe hat einen rahmfarbenen Anflug. „Die Iris ist dunkelbraun, der Schnabel schwärzlich hornfarben, der Unterkiefer von der Basis an und die Beine bleigrau“ (Kalinowski). Dimensionen: Flügellänge 57.0 mm., Schnabel vom Nasenloch an 9.0 mm.

Typus (im Poln. Naturh. Staatsmuseum), juv., 23 VII 1891. La Garita del Sol (Vitoc-Thal, Central-Peru) coll. J. Kalinowski.

Anmerkung: Das beschriebene Exemplar wurde mit jungen Exemplaren von *Picumnus lafresnayei* und *Picumnus wallacii* verglichen, dementsprechend kann diese Form weder mit *Picumnus castelnaui*, noch mit *Picumnus punctifrons* identifiziert werden.

21. *Picumnus steindachneri* Tac z.

Picumnus steindachneri Tac z a n o w s k i 1882, Proc. Zool. Soc. Lond., p. 40; [terra typica: Chirimoto, Huayabamba-Thal, N. O. Peru].

Vorkommen: N. O. Peru.

Typus befindet sich im Polnischen Naturhistorischen Staatsmuseum in Warschau: ♂ ad. 19 VII 1880, Chirimoto, Huayabamba, N. O. Peru coll. J. Sztolcman.

22. *Picumnus jelskii jelskii* Tac z. [Taf. XXXII, Fig. 9 u. 10].

Picumnus jelskii Tac z a n o w s k i 1882, Proc. Zool. Soc. Lond., p. 41; [terra typica: Paltaypampa, Chanchamayo, Peru].

Vorkommen: Central-Peru (Chanchamayo - Thal bei Paltaypampa, Urubamba-Thal, bei San Miguel).

Typus befindet sich im Polnischen Naturhistorischen Staatsmuseum in Warschau: ♂ ad. 13 IV 1872, Paltaypampa, Chanchamayo-Thal, Central-Peru, coll. K. Jelski.

23. *Picumnus jelskii vitocensis* subsp. nov.

[Taf. XXXII, Fig. 7].

Picumnus jelskii [partim] Berlepsch and Stolzmann, Proc. Zool. Soc. Lond., 1902, p. 34.

Ähnlich dem *Picumnus jelskii* (aus Chanchamayo) von demselben jedoch auf den ersten Blick durch einen viel helleren Bauch unterschieden. Ausserdem sind die Federn auf der Kehle und auf der Brust bei *P. j. vitocensis* ganz verschieden von jenen Federn derselben Körperteile bei *P. j. jelskii*. Die Federn auf der Kehle bei *P. j. jelskii* sind in der Mitte schwarz mit weissen Aussensäumen; dieselben Federn bei *P. j. vitocensis* sind weiss mit schwarzen Aussensäumen. Die Federn der Brust bei *P. j. vitocensis* sind weiss mit schwarzen, regulären, herzförmigen Flecken in der Mitte (s. Tafel XXXII, Fig. 7), bei *P. j. jelskii* sind die Federn der Vorderbrust weiss mit zwei schwarzen Flecken (s. Tafel XXXII, Fig. 9), auf der Hinterbrust; auf beiden Seiten des Bauches vereinigen sich diese Flecken zu einem einzigen, welches schwach in der Mitte verengt erscheint (s. Taf. XXXII Fig. 10).

Das Weibchen ist dem Männchen ähnlich, hat aber einen heller gefärbten Bauch.

	Flügel	Schnabel v. Nasenloch an.
♂ 23 VII 1891. Vitoc, La Garita del Sol, coll. J. Kalinowski	60.0 mm.	10.0 mm.
♀ 23 VII 1891. Vitoc, La Garita del Sol, coll. J. Kalinowski	56.0 „	9.6 „

Typus (im Polnischen Naturhistorischen Staatsmuseum in Warschau): ♂ 23 VII 1891, Vitoc, La Garita del Sol, Centralperu, coll. J. Kalinowski. „Iris dunkelbraun, Schnabel dunkelbraun, der Unterkiefer von der Basis an und die Beine bleigrau“.

24. *Picumnus albosquamatus* Lafr. [Taf. XXXII, Fig. 6].

Picumnus albosquamatus Lafresnaye 1835, in D'Orbigny: Voy. Amer. Mérid. IV, Ois, 1835—1844; p. 380; [terra typica: Yungas, Bolivia].

Vorkommen: Bolivia.

Im Polnischen Naturhistorischen Staatsmuseum in Warschau befindet sich ein Exemplar dieses Vogels, welches bis jetzt in der Literatur nicht bekannt war: ♀ 23 IX 1896, Chulumani, Bolivia, coll. J. Kalinowski.

25. *Picumnus pygmaeus* Licht.

Picumnus pygmaeus Lichtenstein 1823, Vera Doubl., p. 11; [terra typica: Brasilien].

Vorkommen: Brasilien (Bahia, Minas Geraes, Rio de Janeiro).

26. *Picumnus asterias* Sund.

Picumnus asterias Sundevall 1866, Consp. Av. Picin., p. 97; [terra typica: Brasilien].

Vorkommen: Brasilien.

27. *Picumnus guttifer* Sund.

Picumnus guttifer Sundevall 1866, Consp. Av. Picinae, p. 101; [terra typica: Goyaz, Brasilien].

Picumnus sagittatus Sundevall 1866, Consp. Av. Picinae, p. 103.

Picumnus sagittatus var. *sharpei* v. Ihering 1901, Rev. Mus. Paulista, V, p. 279.

Picumnus caipira v. Ihering 1901, Rev. Mus. Paulista, V, p. 280.

Vorkommen: Centrabrasilien (Matto Grosso, Goyaz, Minas Geraes, São Paulo).

28. *Picumnus minutissimus minutissimus* (Pall.).

Picus minutissimus Pallas 1782, Neue Nord. Beytr., III, p. 5; [terra typica: Surinam].

Picumnus lepidotus Cabanis u. Heine 1863, Mus. Hein., IV, p. 14.

Picumnus squamiger Sundevall 1866, Consp. Av. Picinae, p. 102.

Vorkommen: Niederländisch- und Französisch-Guyana; N. Brasilien.

29. *Picumnus minutissimus corumbanus* Lima.

Picumnus lepidotus corumbanus Lima 1920, Rev. Mus. Paulista, XII, p. 94; [terra typica: Corumbá, Matto Grosso, Brasilien].

Vorkommen: Brasilien (Matto Grosso).

30. *Picumnus squamulatus squamulatus* Lafr.

Picumnus squamulatus Lafresnaye 1854, Rev. et Mag. de Zool., p. 208; [terra typica: Columbia].

Microcolaptes squamulosus Bonaparte 1854, Consp. Volucr. Zygod., p. 11.

Vorkommen: Columbia.

31. *Picumnus squamulatus obsoletus* Allen.

Picumnus obsoletus Allen 1892, Bull. Am. Mus. Nat. Hist., IV, p. 55; [terra typica: N. O. Venezuela].

Vorkommen: Venezuela, O. Columbia (Cucuta).

32. *Picumnus nebulosus* Sund.

Picumnus nebulosus Sundevall 1866, Consp. Av. Picinae, p. 103; [terra typica: S. Brasilien].

Vorkommen: S. Brasilien.

33. *Picumnus exilis* (Licht.).

Picus exilis Lichtenstein 1823, Verz. Doubl., p. 11; [terra typica: São Paulo, Brasilien].

Picumnus hypoxanthus Reichenbach 1854, Scans. Picinae, p. 344.

Picumnus guttatus Malherbe 1862, Mon. Picidae, II, p. 295.

Vorkommen: Ost Brasilien (Bahia, São Paulo).

34. *Picumnus buffoni buffoni* Lafr.

Picumnus buffoni Lafresnaye 1845, Rev. Zool., p. 6; [terra typica: Cayenne].
 (?) *Pipra minuta* Linnaeus 1764, Mus. Adolph. Frid., tom. II, Prodr., p. 34.
Picumnus guttatus Reichenbach 1854, Scans. Picinae, p. 344.
Picumnus penardi Penard u. Penard 1918, De Vog. van Guyana, I, p. 559.

Vorkommen: Französisch Guyana, Niederländisch-Guyana.

35. *Picumnus buffoni meridionalis* nom. nov.

Picumnus buffoni amazonicus Snethlage 1914, Orn. Monatsb., XXII, p. 39;
 [terra typica: St. Antonio da Cachoeira am Rio Jary, Pará].

Vorkommen: N. O. Brasilien (Rio Jary in Pará).

Picumnus buffoni amazonicus Snethlage 1914 ist durch
Picumnus amazonicus Snethlage 1906 (Orn. Monatsb., XIV,
 p. 60) präokupiert.

36. *Picumnus buffoni undulatus* Harg.

Picumnus undulatus Hargitt 1889, Ibis, p. 354; [terra typica: Mt. Roraima,
 Br. Guyana].

Vorkommen: Britisch Guyana, Ost Venezuela.

37. *Picumnus buffoni salvini* Harg.

Picumnus salvini Hargitt 1893, Bull. Brit. Orn. Club. III, p. 3; [terra typica:
 Bogota, Columbia].

Vorkommen: Columbia.

38. *Picumnus punctifrons punctifrons* Tacz.

Picumnus aurifrons Taczanowski, Proc. Zool. Soc. Lond., 1874, p. 546.
Picumnus punctifrons Taczanowski 1886, Orn. Pérou, III, p. 65; [terra
 typica: Peru; als einen näher bezeichneten, für diese Form typi-
 schen Landstrich schlage ich Central-Peru (Monterico) vor].

Im Polnischen Naturhist. Staatsmuseum befinden sich fol-
 gende Exemplare dieser Unterart:

	Flügel	Schnabel v. Nasenloch an.
♂ 2 XI 1870, Monterico (<i>typ.</i> <i>descript.</i>), coll. K. Jelski	54.0 mm.	10.0 mm.
♂ 3 III 1891, La Merced, coll. J. Kalinowski.	54.0 "	10.0 "
♀ 12 XII 1870, Monterico, coll. K. Jelski.	51.0 "	9.5 "

Taczanowski hat nur die im November und Dezember erlegte Exemplare von *P. punctifrons* gesehen. Jetzt befindet sich im hiesigen Museum ein im März erbeutetes Exemplar aus Mittelperu (La Merced). Dasselbe hat etwas grellere Farben, als die im November und Dezember erlegten Vögel, doch noch immer nicht so intensiv als die in derselben Jahreszeit erbeuteten Exemplare aus dem nordöstlichen Peru (Huambo). Die weissen Flecken auf dem Ober- und Hinterkopfe sind beim erwähnten Exemplare auch kleiner, als bei den Vögeln aus Huambo, welche ich dementsprechend im Folgenden als selbständige Unterart ausscheide. Gegenwärtig ist also *P. p. punctifrons* nur aus Mittelperu (Monterico, La Merced) bekannt.

39. *Picumnus punctifrons taczanowskii* subsp. nov.

Picumnus aurifrons Taczanowski, Proc. Zool. Soc. Lond., 1882, p. 42.

Picumnus punctifrons (partim) Taczanowski 1886, Orn. Pérou, III, p. 65.

In dieser Subspecies vereinige ich die Vorkommnisse aus dem Nordöstlichen Peru. Die Unterschiede zwischen diesen Formen und jenen aus Mittelperu hat schon Taczanowski hervorgehoben, welcher darüber nachstehendes mitteilt: „Les oiseaux du Pérou septentrional différent de ceux du Pérou central par la nuance des parties supérieures du corps plus vive et par le fond du dessous beaucoup plus jaunâtre; les points blancs du sommet de la tête beaucoup plus gros; les raies foncées du ventre moins régulières; les bordures des rémiges secondaires plus vives. Toutes ces différences peuvent être en relation avec la fraîcheur du plumage, qui est plus frais dans les oiseaux d’Huambo. Les points blancs du sommet de la tête, comme il me paraît, ne pourraient pas subir de pareils changements. Les oiseaux du Pérou septentrional ont été recueillis dans la première moitié de mars, tandis, que ceux du Pérou central l’ont été en novembre et en décembre“ (Orn. Pérou, III, p. 66).

Da ich jetzt ein im März, also in derselben Zeit, wie die Vögel aus Huambo, erlegtes Exemplar aus Mittelperu (♂ 3 III 1891, La Merced, Flussthal des Chanchamayo) zur Verfügung habe, welches Taczanowski nicht bekannt war, als er die oben zitierten Worte schrieb, kann ich heute feststellen, dass die Unterschiede zwischen der Form aus Mittelperu (*P. p. punctifrons*) und

jener aus dem nordöstlichem Peru (*P. p. taczanowskii*) wirklich vorhanden sind. Die Intensität der grüngelben Farben auf dem Unterkörper und auf dem Mantel bei *P. p. taczanowskii* ist viel stärker als diejenige bei *P. p. punctifrons* und die weissen Flecken auf dem Kopfe erscheinen grösser und zahlreicher.

Typus ♂ 28 IV 1880, Huambo, N. O. Peru, coll. J. Sztolcman.

In hiesigen Museum befinden sich vier Exemplare von *P. p. taczanowskii*:

	Flügel	Schnabel v. Nasenloch an.
♂ 28 IV 1880, Huambo, <i>typus</i> coll. J. Sztolcman . . .	54.0 mm.	10.0 mm.
♂ 12 III 1880, Huambo, coll. J. Sztolcman	55.0 „	9.5 „
♀ 29 III 1880, Huambo, coll. J. Sztolcman	51.0 „	9.5 „
♀ 18 III 1880, Huambo, coll. J. Sztolcman	53.0 „	—

40. *Picumnus stellae* Berl. & Hart.

Picumnus stellae Berlepsch & Hartert 1902, Nov. Zool. IX, p. 96; [terra typica: Maipures, Río Orinoco, Venezuela].

Vorkommen: Venezuela.

41. *Picumnus lafresnayei* Malh.

Picumnus lafresnayei Malherbe 1862, Mon. Picidae II, p. 282; [terra typica: Ecuador].

Vorkommen: Ecuador und Nord-Peru.

42. *Picumnus aurifrons aurifrons* Pelz.

Picumnus aurifrons Pelzelin 1870, Orn. Bras. pp. 241, 334; [terra typica: Matto Grosso, N. Brasilien].

Vorkommen: N. Brasilien.

43. *Picumnus aurifrons flavifrons* Harg.

Picumnus flavifrons Hargitt 1889, Ibis p. 229; [terra typica: Sarayacu, Ost-Peru].

Vorkommen: Ost-Peru und N. O. Brasilien.

44. *Picumnus borbae* Pelz.

Picumnus borbae Pelzel n 1870, Orn. Bras. pp. 241, 334; [terra typica: Borba Untere Madeira, Nord Brasilien].

Vorkommen: N. Brasilien (Rio Madeira, Rio Tapajoz, Jamauchim).

45. *Picumnus wallacii* Harg.

Picumnus wallacii Hargitt 1889, Ibis, p. 230; [terra typica: Oberer Amazonas].

Vorkommen: Amazonas.

46. *Picumnus olivaceus olivaceus* Lafr.

Picumnus olivaceus Lafresnaye 1845, Rev. Zool. VIII, p. 7; [terra typica: Bogota, Columbia].

Vorkommen: Mittel Columbia.

47. *Picumnus olivaceus harterti* Hellm.

Picumnus olivaceus harterti Hellmayr 1909, Bull. Brit. Orn. Club XXIII p. 67; [terra typica: Paramba, N. W. Ecuador].

Vorkommen: W. Ecuador und S. W. Columbia.

48. *Picumnus olivaceus panamensis* Ridgw.

Picumnus olivaceus panamensis Ridgway 1911, Proc. Biol. Soc. Wash., XXIV, p. 34; [terra typica: Lion Hill, Panama].

Vorkommen: Ost Panama.

49. *Picumnus olivaceus flavotinctus* Ridgw.

Picumnus flavotinctus Ridgway 1889, Proc. U. S. Nat. Mus., p. 543; terra typica: Pozo Azul de Perris, S. W. Costa Rica].

Vorkommen: S. W. Costa Rica bis W. Panama.

50. *Picumnus olivaceus dimotus* Bangs.

Picumnus dimotus Bangs 1903, Bul. Mus. Comp. Zool., XXXIX, p. 146; [terra typica: Ceiba, Honduras].

Vorkommen: Honduras und O. Nicaragua.

51. *Picumnus granadensis granadensis* Lafr.

Picumnus granadensis Lafresnaye 1847, Rev. Zool., p. 78: [terra typica: Cali, Columbia].

Picumnus canus Bangs 1910, Proc. Biol. Soc. Wash., XXIII, p. 72.

Vorkommen: W. Columbia.

52. *Picumnus granadensis antioquiensis* Chapm.

Picumnus granadensis antioquiensis Chapman 1915, Bull. Am. Mus. Nat. Hist. XXXIV, p. 640: [terra typica: Peque, Antioquia, Columbia].

Vorkommen: N. W. Columbia.

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TAFELERKLÄRUNG.

- Fig. 1. *Picumnus sclateri sclateri* ♀ ad. (typus descript.) (Peru.: Lechugal, Rio Zarumilla).
2. *Picumnus sclateri parvistriatus* ♂ ad. (Ecuador, Guayaquil).
3. *Picumnus irenae* (typus descript.) (Peru: Vitoc, La Garita del Sol).
4. *Picumnus iheringi* ♂ (Parana: Rio da Areia, Faz. Ferreira).
5. *Picumnus temminckii* ♀ ad (Paraná: Fazenda Durski).
6. Feder aus der Brust von *Picumnus albosquamatus* ♀ (Bolivia, Chulumani).
7. Feder aus der Brust von *Picumnus jelskii vitocensis* (typus descript.) (Peru: Vitoc, La Garita del Sol).

- Fig. 8. Feder aus der Brust von *Picumnus irenae* (typus descript.) (Peru: Vitoc. La Garita del Sol).
„ 9. Feder aus der Vorderbrust von *Picumnus jelskii jelskii* (typus descript.) (Peru: Paltaypampa).
„ 10. Feder aus der Hinterbrust von *Picumnus jelskii jelskii* (typus descript.) (Peru: Paltaypampa).
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STRESZCZENIE.

Autor podaje wykaz form południowo-amerykańskiego rodzaju *Picumnus* Temm. Jako formy nowe opisuje autor: *Picumnus irenae*, *Picumnus jelskii vitocensis* i *Picumnus punctifrons taczanowskii*. Podgatunkowi *Picumnus buffoni amazonicus* Snethl. nadaje autor nową nazwę — *Picumnus buffoni meridionalis*, a to na tej zasadzie, że nazwa *Picumnus amazonicus* była już dawniej użyta dla innego gatunku tegoż rodzaju.

DR. HIERONIM JAWŁOWSKI.

**Dwie nowe formy krocionogów z okolic
Wilna.**

**Zwei neue Diplopoden aus der Umgegend
von Wilno.**

Schizophyllum vilnense n. sp.

Beim Sammeln der Diplopoden in der Umgebung Wilno's in den Jahren 1923 und 1924 fand ich mehrere Exemplare der Gattung *Schizophyllum*, welche von den bis jetzt beschriebenen Arten ¹⁾ insofern abweichen, dass sie, obgleich dem *S. sabulosum* L. sehr ähnlich, dennoch als eine neue Art zu betrachten sind.

Diese neue Art möchte ich *S. vilnense* nennen, da ich sie in der Gegend von Wilno entdeckte.

Beschreibung der Art.

Die Häkchen des ersten Beinpaares des ♂ [Fig. 1] sind stärker gebogen, als die des *S. sabulosum* und auf ihrer Biegung befindet sich meist ein grösserer Höcker. Der Telopodit des ersten Beinpaares beim Schaltmännchen ist meistens am Ende ventral eckig ausgebogen, bei *S. sabulosum* zumeist abgerundet. Die vorderen Gonopoden sind am Ende leicht zugespitzt und am inneren Rand weniger als bei *S. sabulosum* gebogen. Auf den hinteren Gonopoden [Fig. 2] befinden sich bedeutend kleinere als bei *S. sabulosum* dornähnliche Mesomerite. Der Rand des Rinnenblattes ist anders als bei *S. sabulosum* gebogen und basalwärts ragt ein Fortsatz hervor, welcher mit dem Randwulst der Fovea verbunden ist. Der Paracoxit erscheint am Grunde schmaler als bei *S. sabulosum*.

¹⁾ Verhoeff K. Chilognathen Studien. Archiv für Naturgeschichte, Abt. A, 12 H. 1920.

Die Männchen sind 24—29·5 mm. lang und weisen 45—49 Segmente auf, wobei die 2 oder 3 letzten beinlos sind. Die Weibchen 24—34 mm. lang, besitzen bis 50 Segmente, von denen die 2 letzten ebenfalls beinlos sind. Das ♀ des *S. vilnense* ist in der Regel breiter als bei den aus der Umgebung Wilno's stammenden Exemplare von *S. sabulosum* und zwar: Breite der ♀ von *S. sabulosum* 2·5 — 3·5, bei jenen von *S. vilnense* nicht selten 4 mm., bei gleicher Körperlänge. Die Männchen des *S. vilnense* sind ebenfalls breiter als die Männchen des *S. sabulosum*.

Die Unterflanken unterhalb der Wehrdrüsen sind heller als der Rücken gefärbt. Längs dem Rücken verlaufen zwei schmutzige Streifen, welche aus vielen Pünktchen zusammengesetzt sind und bisweilen kaum sichtbar erscheinen. Der Rücken der reifen Männchen sowie der Schaltmännchen ist ganz dunkel, und können Spuren einer roten Färbung auf den letzten Segmenten nur ausnahmsweise beobachtet werden. Die jungen Weibchen und Männchen sind auf der Rückenseite lebhafter gefärbt.

Die Rippen auf den Metazoniten sind im allgemeinen etwas stärker als bei *S. sabulosum* ausgeprägt. Sehr zahlreich fand ich *S. vilnense* in Gesellschaft von *S. sabulosum* (*sabulosum bilineatum* K.) bei Kiena, vorwiegend in Kiefer-, Erlen- und Birkenwäldern mit sumpfigem Torfsandboden, und zwar: im Frühling und Anfang Herbst unter der Rinde fauler Baumstämme, seltener im Moos; im November und Dezember dagegen — ausschliesslich unter dicken Moospolstern.

Im Poln. Naturhistorischen Staatsmuseum in Warschau fand ich in der Myriapoden-Sammlung einige Exemplare von *S. vilnense*, bei welchen sogar dornähnliche Mesomerite an den hinteren Gonopoden fehlen. Diese Exemplare wurden im Juli 1925 von Dr. W. Poliński auf dem felsigen bewaldeten Hügel Chełmska Góra (S.-W. Polen, Kreis Radomsko) gesammelt.

Ich vermute dass *S. vilnense* ein bedeutendes Gebiet Polens bewohnt, bisher jedoch von *S. sabulosum* nicht unterschieden worden war, da es als dessen var. *punctulatum* oder *apunctulatum* betrachtet werden konnte.

Microiulus laeticollis P. var. *mierzeyewskii* n. var.

Die bei Kiena gefangene Art *Microiulus laeticollis* P. scheint mir recht beachtenswert zu sein, obgleich sie den von

Porat ¹⁾ und Verhoeff ²⁾ beschriebenen Exemplaren sehr ähnlich ist.

Leider stösst der genauere Vergleich auf Schwierigkeiten, weil in den Abhandlungen der genannten Autoren die Kopulationsorgane nicht abgebildet, und etwas abweichend beschrieben werden.

In der Färbung unterscheiden sich meine Exemplare vom typischen *M. laeticollis*, indem entweder der ganze Körper einfarbig dunkel oder das Halsschild nur wenig heller als der übrige Körper erscheint; nach Porat und Verhoeff soll jedoch das Halsschild von *M. laeticollis* anders gefärbt sein, als der übrige Körper (weisslich oder rötlich).

Merkmale: Häkchen (Uncus) der ♂ stark gebogen und am Ende leicht warzenförmig. Polster finden sich an mindestens 20 Beinpaaren, der untere Lappen am VII Pleurotergit mit faltenförmigem Vorsprung. Die vorderen Gonopoden [Fig. 3] haben auf ihrer Hinterseite eine längliche Falte, oben eine papillöse Struktur und unten einen Querhöcker sowie einen Höcker. Das Mittelblatt [Fig. 4] erscheint in der Mitte etwas verengt, was durch die Biegung des Randes nach vorne hervorgerufen wird. Das fingerförmige Ende des Mittelblattes ist papillös. Die hinteren Gonopoden [Fig. 5 und 6] besitzen weder Hüftstücke noch Innenstachel (nach Verhoeff tragen die hinteren Gonopoden von *M. laeticollis* kleine Innenstachel). Oberhalb der Gonopoden befinden sich zwei Arme von denen der Äussere einen blattartigen Fortsatz, der Innere die Samenrinne und oben einen kleinen Fortsatz besitzt. Ausserdem weist noch der innere Arm hinten am Grunde einen Vorsprung und vorne eine dünne wenig sichtbare Lamelle (Velum) auf ³⁾.

Segmentzahl wie bei *M. laeticollis* (nach Porat), obgleich das Tier selbst etwas dünner und kürzer ist. 12 (8♂ und 4♂) Exemplare fand ich bei Kiena (Umg. von Wilno) im Moos sowie in faulen Stämmen der Birke, Kiefer und Erle.

¹⁾ Porat C. O. Nya Bidrag till Skandinaviska Halföns Myriopodologie. Entomol. Tidskr., 1889. Stockholm.

²⁾ Verhoeff C. Über Diplopoden aus Bosnien Herzogowina und Dalmatien. Archiv f. Naturg., Bd 1, H. 2, 1898.

Verhoeff C. Über Diplopoden. Mitteil. aus dem Zool. Museums in Berlin, Bd. III, H. 3, 1907.

³⁾ Nach Verhoeff fehlt dieselbe bei *M. laeticollis*.

Es handelt sich hier vermutlich um eine neue „varietas“ von *M. laeticollis*, und ich widme sie Herrn Prof. W. Mierzejewski, welcher mir den interessant Ort Kiena bezeichnete.

ERKLÄRUNG DER TEXTABBILDUNGEN.

Schizophyllum vilnense n. sp.

- 1) Erstes Hakenbein des ♂ $\times 35$, h: Höcker.
- 2) Linker hinterer Gonopod von vorn gesehen, $\times 45$.
 - m* — Mesomerit
 - f* — Fortsatz
 - p* — Paracoxit
 - r* — Rinnenblatt

Microiulus laeticollis var. *mierzewskii* n. var.

- 3) Rechter vorderer Gonopod von hinten gesehen, $\times 65$.
 - h* — Höcker
 - gh* — Querhöcker
 - f* — Falte
 - p* — papillöse Structur.
- 4) Mittelblatt, $\times 95$.
 - e* — Verengung.
- 5) Rechter hinterer Gonopod von vorn und etwas von der Innenseite gesehen, $\times 80$
 - a* — äusserer Arm
 - i* — innerer Arm
 - k* — kleiner Fortsatz
 - v* — Vorsprung
 - l* — dünne Lamelle.
- 6) Oberer 5 teil des rechten hinteren Gonopoden von der Innenseite gesehen, $\times 100$.
Bezeichnungen wie auf Fig. 5.

STRESZCZENIE.

Autor podaje opis nowego gatunku z rodzaju *Schizophyllum*, nadając mu nazwę *S. vilnense* n. sp., oraz nową odmianę *Microiulus laeticollis mierzewskii* n. var. Obydwie nowe formy zostały znalezione w okolicach Wilna (Kiena, Jaszuny).

Z Zakładu Zoologii Uniwersytetu
Stefana Batorego w Wilnie.



1.



3.



5.



2.



4.



6

6.

JAN SZTOLCMAN.

Miscellanea ornithologica I — III.

I. Une nouvelle famille de l'ordre *Passeriformes*.

On divise d'ordinaire la famille des *Tanagridae* en deux sous-familles, à savoir: *Tanagrinae* et *Euphoninae*. Les représentants de cette dernière possèdent des caractères morphologiques, anatomiques et biologiques tellement prononcés, que je prends la liberté d'élever la sous-famille *Euphoninae* au rang de famille, qui selon les règles de nomenclature doit porter le nom de

Fam. *Tanagridae* ex rect. mea

Euphoninae auct.

Les oiseaux appartenant à cette famille sont de petite taille, le plus grand ne dépassant pas notre chardonneret, tandis que le plus petit est de la taille d'un roitelet. Corps allongé; bec médiocre, assez large est aplati, légèrement crochu; la ligne du bord de la mandibule supérieure ondulée; pattes plutôt courtes; queue courte.

Genre-type: *Tanagra* Linné 1758 (= *Euphonia* Desmarest).

Dans la structure anatomique les *Tanagridae* présentent un détail particulier: le manque de l'estomac proprement dit (*ventriculus*), qui est remplacé dans cette partie du canal alimentaire (entre le *proventriculus* et le *duodenum*) par une zone au parois

de la même épaisseur, que celle des parois des parties adjacentes ¹⁾).

Cette structure anormale du canal digestif est en relation immédiate avec le genre de nourriture propre à tous les oiseaux de cette famille. En réalité, les *Euphoninae* - hodie *Tanagridae* - se nourrissent exclusivement de matières végétales légères à digérer, comme p. e. de fruits des différentes espèces des cactus, de guayaves et surtout de baies du gui (*Loranthus*). Le contenu de ces fruits est une matière gélatineuse renfermant des petits grains. Chose étrange — cette nourriture passant par le canal digestif ne subit en apparence aucun changement et possède le même aspect dans le jabot comme dans le gros intestin tout près de l'anus. Et pourtant ses parties nutritives doivent être bien assimilées puisque les *Tanagridae* (olim *Euphoninae*) sont d'ordinaire bien gras.

Si on observe un arbre, où se trouve le gui en fruit, on remarque que les oiseaux restent un certain temps sans bouger. Ensuite ils commencent à se mouvoir: c'est le moment, où ils arrachent les baies qui leur servent de nourriture, pour rester de nouveau un certain temps sans bouger en train de digérer. Pendant ces moments de repos ils laissent entendre leur voix faible, mais harmonieuse. Ce régime dure toute la journée sans que les oiseaux s'éloignent de l'arbre.

Tous les représentants de la famille *Tangaridae* (olim *Tanagridae*) se nourrissent de matières végétales, mais ils ne dédaignent pas les insectes et les araignées, tant qu'ils les rencontrent sur leur route; et même j'observais souvent que des nombreux représentants de cette famille, comme par exemple: *Tangara*, *Thraupis*, *Piranga*, *Chlorospingus* et autres chassent souvent les insectes au vol à la manière de gobe-mouches et presque dans tous les estomacs des membres de la famille *Tangaridae* je trouvais des débris des insectes. Or chez les *Tanagridae* je ne me rappelle pas d'avoir rencontré des traces des insectes.

¹⁾ Pour les détails voir le travail de W. A. Forbes, Contribution to the Anatomy of Passerine Birds (P. Z. S. L., 1880, pp. 143—146) et celui du dr. Gadow dans Bronn's Klassen u. Ordnungen des Thier-Reichs, Leipzig. 1891, pl. XXXIV, fig. 57, pp. 658, 677.

En général ce sont des oiseaux moins remuants que les *Tangaridae*. Ils ont l'habitude de passer la nuit dans les couronnes des arbres très épais¹⁾.

Les *Tanagridae* dans leur dispersion géographique occupent toute l'Amérique tropicale depuis le Mexique jusqu'à la Bolivie, la rep. Argentine sept., le Paraguay et le Brésil meridional, ainsi que les Antilles. Quant à leur dispersion orographique (verticale) — d'après mes propres observations — les *Tanagridae* ne dépassent pas l'altitude de 6000' au dessus du niveau de la mer; mais d'après mr. Frank Chapman, l'expédition américaine, qui explora la Colombie entre 1910 et 1915, a trouvé la *Chlorophonia pretrei* (Lafr.) et la *Tanagra xanthogastra chocoensis* (Hellm.) à Cerro Munchique à une hauteur de 8325' au dessus du niveau de la mer²⁾, et c'est probablement la limite supérieure de la dispersion orographique de cette famille.

La famille des *Tanagridae* renferme les quatre genres suivants: *Tanagra*, *Hybophea*, *Chlorophonia* et *Pyrrhuphonia*.

Observations. Suivant les règles de la nomenclature j'ai été obligé à appliquer le nom de *Tanagridae* à cette nouvelle famille, ce qui doit entraîner le changement de nom de l'ancienne famille *Tanagridae*. Selon les règles de priorité le genre *Tangara* (olim *Calliste*) est plus ancienne que le genre *Thraupis* (olim *Tanagra*) et pour cette raison il faut appliquer à l'ancienne famille *Tanagridae* le nom de:

Tangaridae nom. nov.

C'est le savant danois, dr. Peter Lund, qui le premier décrit la structure anormale du canal digestif des *Tanagridae* (*Euphoninae*)³⁾. Lund dans sa description parle d'un *diverticulum* partant de la zone qui remplace l'estomac musculueux; mais Forbes malgré des recherches minutieuses n'avait pas pu retrouver cette excroissance. Il n'existe non plus aucun rétrécissement entre le

¹⁾ Pour les détails sur les habitudes des *Tanagridae* voir mes remarques chez Taczanowski (Orn. Pérou. II, p. 440).

²⁾ Fr. Chapman. The distribution of bird-life in Colombia. Bull. Am. M. Nat. Hist. XXXVI, 1917, pp. 587 et 588.

³⁾ Dr. P. Lund. De genere *Euphones*, praesertim de singulari canalis intestinalis structura, in hoc avium genere Copenhagen 1829,—31 pages et une planche.

proventriculus et le *ventriculus* (ou plutôt la zone qui le remplace), ni entre ce dernier et le *duodenum*. Comme dit justement le prof. Garrot dans son MS (cité par Forbes) „the intestines apparently continuing from the oesophagus“.

Comme lien d'union entre les familles: *Tanagridae* et *Tangaridae* sert le genre *Pipridea* qui possède la disposition des couleurs semblable à celle de la *Tanagra cyanocephala* (Müll.) et qui d'après mes observations possède le *ventriculus* très petit en relation à sa taille¹⁾ et qui se nourrit de fruit et d'insectes. La présence de l'estomac musculeux (quoique très petit) nous oblige de placer le genre *Pipridea* dans la famille des *Tangaridae*.

II. Suppression d'une espèce du genre *Emberiza*.

En 1888 Taczanowski décrivit une nouvelle espèce du genre *Emberiza* sous le nom de *Emberiza jankowskii*²⁾ prenant pour type le specimen unique tué par le bien connu compagnon du dr. Benoît Dybowski — Michel Jankowski à Sidemi (Sibérie or., près de la frontière de la Corée) le 9 mars 1886. Ce spécimen faisait partie du Musée-Branicki et se trouve à présent dans le Musée Polonais d'Histoire Naturelle à Varsovie. Dans le travail cité Taczanowski dit:

„Il est étonnant qu'un oiseau aussi remarquable ne fut trouvé pour la première fois qu'au bout de vingt ans de l'exploration continuelle de ce pays, tant plus qu'il n'a pas été trouvé dans tous les pays environnants dont la faune est assez bien connue. On sait parfaitement que les oiseaux de ce genre se

¹⁾ Taczanowski (P. Z. S. L. 1879, p. 226) usa l'expression, „rudimentaire“, ce qui fut répété par Forbes (l. c.) et qui n'est pas exacte. Je trouve dans mon journal la note: „l'estomac très petit en relation à la taille de l'oiseau“.

Je profite de l'occasion pour attirer l'attention sur le fait, que le dr. Gadow dans Bronn (l. c. pag. 658) parlant de la poche stomacale anormale chez les Euphonias, cite que Holzmann a trouvé chez la *Pipridea melano-nota* le *ventriculus* anormal. Comme c'est une citation de Forbes, je suppose que c'est une erreur typographique au lieu de Stolzmann, qui est mon nom écrit avec l'orthographe allemand.

²⁾ Voir: The Ibis, July 1888, pp. 317—319, pl. VIII, fig. unique.

trouvent partout en nombre plus ou moins considérable et ne se dérobent pas devant l'oeil des explorateurs. On ne peut pas même supposer qu'on puisse prendre cette espèce au premier coup d'oeil pour l'*Emberiza cioides* semblable et très commune dans la contrée, car elle présente des caractères qui sont visibles à une distance assez éloignée. Où peut donc se trouver la région principale de l'habitat de ce bruant?«.

A ces vingt ans de l'exploration continuelle, dont parle Taczanowski, il faut ajouter deux années des explorations suivies en Corée et à Sidemi même par Jean Kalinowski, qui travaillait dans ces pays pour le Musée Branicki et qui explorait en suite pendant 13 ans avec tant de succès le Pérou et la Bolivie aussi pour le compte du même Musée. Avec ça il faut prendre en considération les travaux des explorateurs russes, qui visitèrent ces contrées après Kalinowski. Or ni avant ni après personne n'a trouvé trace de l'existence de la *Emberiza jankowskii*.

Ce fait nous conduit à l'idée — exprimée, du reste, par le dr. Ernst Hartert en forme de doute¹⁾ — que l'oiseau décrit par Taczanowski sous le nom de *Emberiza jankowskii* soit revête un plumage anormal, soit est un produit de croisement entre deux espèces du genre *Emberiza* — fait, qui se répète assez souvent dans la famille des *Fringillidae*.

Dans le but d'éclaircir cette question je me suis mis à étudier les différentes espèces du genre *Emberiza* venant du Pays Oussourien et de la Corée et de les comparer avec le type de la *E. jankowskii*, et je suis arrivé à la conclusion, que celle-ci est un hybride de la *E. leucocephalos* Gmel. (= *E. pithyornus* Pall.) et de la *E. cioides cioides* Brandt.

En réalité, si nous comparons la *E. jankowskii* avec la *E. leucocephalos*, nous pouvons remarquer, que tout le dessus du corps (excepté le sommet de la tête) ainsi que la surface supérieure de la queue sont presque identiques chez les deux formes. Le pileum qui est blanc chez la *E. leucocephalos*, marque chez *E. jankowskii* une couleur brun ferrugineuse à peine un peu plus claire que chez la *E. c. cioides*, de qui a prise cette teinte l'espèce douteuse. La disposition des couleurs sur les côtés de

¹⁾ Ernst Hartert. Die Vögel der paläarktischen Fauna, Heft I, Berlin, 1903, pp. 186—187.

la tête chez la *E. c. cioides* et chez la *E. jankowskii* est semblable avec la différence, que le sourcil blanc chez la dernière est plus prolongé, ainsi que la moustache, qui outre ça est d'un brun ferrugineux — héritage probable de l'*E. leucocephalos* — tandis qu'elle est noire chez la *E. c. cioides*. Tout le dessous du corps chez la *E. jankowskii* est d'un gris cendré, plus clair sur la gorge; les flancs sont lavés de fauve roussâtre. Au milieu de la poitrine se trouve une tache oblongue d'un brun ferrugineux. Cette tache qui n'existe ni chez la *E. c. cioides*, ni chez la *E. leucocephalos* me paraît être un caractère atavistique venant d'un des ancêtres — probablement du côté de la *E. leucocephalos*. On peut l'identifier avec la couleur bronzée qui apparaît souvent sur la poitrine du *Tetrao medius* et qui n'existe ni chez le *Tetrao urogallus* ni chez le *Lyrurus tetrix*.

En vue de toutes ces considérations je suis arrivé à la conclusion que l'espèce *Emberiza jankowskii* Tacz. doit être annulée.

III. Description d'une nouvelle espèce du genre *Cathartes*.

Cathartes occipitalis sp. n.

Oenops pernigra (nec Sharpe) Taczanowski, P. Z. S. L, 1882, p. 47;
Orn. Pérou, vol. I, p. 89.

Noir avec un léger lustre verdâtre sur le dos et sur le devant du corps, mélangé de brunâtre foncé sur les couvertures alaires et sur les rémiges tertiaires. Les rétrices sont noires en dessus, schistacées en dessous avec des tiges noires en dessus et blanchâtres en dessous. Sur le bord externe des rémiges secondaires on voit des traces des grosses rayures schistacées à peine perceptibles. Les tiges des rémiges primaires sont d'un blanc enduit de brunâtre en dessus et d'un blanc couleur d'os — en dessous. La tête nue est d'un rouge violet avec une tache occipitale blanche quand les plis sont ramassés. Iris gris avec des stries d'un blanc argenté rayonnantes autour de la pupille. Bec blanc (couleur d'os frais); de la même couleur sont les pattes avec les doigts et les griffes noirâtres¹⁾. Longueur totale 650,

¹⁾ La description de la tête, du bec et des pattes est empruntée dans mon journal (d'après l'oiseau fraîchement tué).

envergure 1670, aile 520, queue 270, bec depuis la commissure 54, bec depuis la cire en ligne droite jusqu'à la pointe 23, tarse 65, doigt médian sans ongle 67, ongle du doigt médian en ligne droite 24 mm.

Mâle *ad.* unique tué par moi à Huambo (Pérou NE, 3700'—*terra typica*) le 18 Avril 1880 (type de l'espèce dans le Musée Polonais d'Histoire Naturelle à Varsovie).

Observations. Je me permets de citer ici l'extrait de ma lettre écrite (en polonais) de Huambo à Taczanowski sous la date de 23 avril 1880.

„Maintenant je passe à la question des *Cathartes*. Encore beaucoup avant de recevoir votre lettre j'ai tiré un de ces *Cathartes* à tête blanche qui blessé tomba obliquement sans que je puisse le retrouver. Seulement la semaine dernière j'avais la chance d'en tuer un mâle adulte. Il se distingue de l'*aura* qui a la tête d'un beau rouge, tandis que celui d'ici en a d'un rouge violet, couleur de teinte apoplectique de certains individus; seulement l'occiput est blanc. A distance la couleur de la tête paraît d'un gris foncé avec le sommet blanc qui se détache fortement du reste de la tête. La présence de cette forme ici est d'autant plus étrange, que le vrai *aura* à tête rouge se trouve à Chirimoto, qui est situé à peine 1800' plus haut que Huambo et à distance de 4 heures de marche. Quand j'ai tiré la première fois, il y avait un couple, tous les deux à tête blanche et il faut dire, qu'ici on ne trouve que les *Cathartes* à tête blanche qui se rencontrent isolement ou par paires, mais en général ils sont rares“. Et plus loin dans la même lettre, sous la date de 27 avril j'ajoutai: „Qui sait, si le *Catharte* capturé ici par moi ne sera une nouvelle espèce, si ce n'est pas un nouveau genre“.

Il résulte du contenu de cette lettre écrite sous une impression toute fraîche qu'à Huambo on ne trouve que le *Catharte* à tête blanche; qu'on peut le distinguer à distance par sa tête blanche; que ce caractère n'est pas un signe de l'âge immature, puisque on rencontre souvent des oiseaux accouplés; et enfin que c'est une forme vivant séparément de *Cathartes aura* L., de qui elle a l'aire de dispersion nettement tranchée. C'est le moment de le dire, que le *C. occipitalis* est un oiseau sylvestre n'habituant que les parties boisées de la Montana, tandis que le *C. aura* fréquente les déserts et les vallées cultivées de la Costa, les

champs découverts de la Sierra et même les parties élevées de la Puna dépourvues complètement d'arbres.

Taczanowski a classé cette forme comme le *Cathartes pernigra* et pourtant Sharpe dit dans sa diagnose „head yellow“ (ce dernier mot en italique comme caractère essentiel). De son côté Sharpe émet l'opinion¹⁾, que la figure dans l'ouvrage du d'Orbigny représente „sans doute“ (doubtless) son *Oenops pernigra*. Il suffit de lire la description de d'Orbigny pour se convaincre que l'oiseau figuré par le savant français s'approche plutôt de la nouvelle forme. „La tête — dit d'Orbigny — est d'un rouge plus ou moins violet, passant au jaunâtre à la base de la commissure des mandibules. Sur la tête sont quatre rides profondes, qui circonscrivent quatre sillons élevés d'une teinte jaunâtre. On en remarque encore six ou huit de la même couleur sur le derrière de la tête“.

D'une autre opinion que Sharpe était aussi le dr. Hellmayr, qui dans sa revision des oiseaux collectés par d'Orbigny dans l'Amérique du Sud¹⁾ dit, que la supposition de Sharpe est difficile à admettre, puisque la description et la figure indiquent un oiseau à tête rouge; et il place l'oiseau du d'Orbigny sous le nom de *Cathartes* sp.

Comparons maintenant l'oiseau du d'Orbigny avec la nouvelle forme. La différence qui existe entre elles se manifeste avant tout dans la couleur générale de la tête, qui d'après la figure dans l'ouvrage cité paraît beaucoup plus claire, que chez l'oiseau de Huambo; en outre chez ce dernier on ne trouve pas de couleur jaunâtre à la commissure des mandibules. Les plis sur le sommet de la tête chez l'oiseau du d'Orbigny sont disposées en deux séries („quatre sillons“ et „six ou huit“), tandis que chez la nouvelle forme — si ma mémoire ne me trompe pas — tous les plis sont ramassés ensemble. Il est donc probable que le soit-disant *Cathartes aura* de d'Orbigny appartient à une espèce ou sous-espèce inédite. Les futures investigations pourrons peut-être nous apprendre, d'où venait le spécimen collecté par d'Orbigny. Le vrai *Cathartes aura* est répandu partout sur la côte et dans la Sierra du Pérou, il est

¹⁾ R. B. Sharpe, Cat. B. Br. M., I, 1874, p. 27 (dans la note)

¹⁾ Novitates Zoologicae, XXVIII, 1921, p. 174.

donc plus que probable que l'oiseau du d'Orbigny venait des parties boisées du versant oriental des Cordillères du Pérou méridional. Si ma supposition est juste, le *Cathartes* du d'Orbigny (appelons le provisoirement *Cathartes orbignyi*) appartiendrait au groupe des *Cathartes* sylvestres, à laquelle appartient le *C. occipitalis* et peut-être *C. pernigra*, *C. urubitinga* et *C. burrovianus*.

A propos de ce dernier je trouve dans le travail des mrs. Bangs et Penard la remarque¹⁾, que mrs. F. P. et A. P. Penard décrivent dans leur „De vogels van Guyana (1908, 9, p. 111) un Catharte sous le nom de *C. burrovianus*, dont les spécimens pas tout-à-fait mûrs avaient „the crown and parts above the eyes, whitish; neck bluish; head reddish violet with a whitish-blue spot on the back of the head“. D'après cette description ces oiseaux ressembleraient assez à mon, *C. occipitalis*; il serait donc intéressant d'apprendre, étaient-ce les oiseaux décrits par mrs. Penard vraiment pas tout-à-fait mûrs et s'ils venaient de la même localité que leurs *C. burrovianus* adultes. Ces deux questions se me posent par la raison, que le type du *C. occipitalis* est parfaitement adulte, et que pendant mon long séjour à Huambo je n'ai vu d'autres Cathartes que ceux avec la tête rouge violet foncée et l'occiput blanc.

STRESZCZENIE.

I. Autor na podstawie budowy przewodu pokarmowego oraz danych morfologicznych i biologicznych, podnosi dawną podrodzinę *Euphoninae* do znaczenia rodziny, nadając jej na zasadzie prawideł nomenklatury nazwę *Tanagridae* od rodzaju *Tanagra* L. (dawniej *Euphonia* Desm.), co pociąga za sobą zmianę dawnej nazwy rodziny *Tanagridae* na *Tangaridae* od rodzaju *Tangara* (dawniej *Calliste*), który ma pierwszeństwo przed rodzajem *Thraupis* (dawniej *Tanagra*).

¹⁾ Outram Bangs and Thomas Penard, Notes on a collection of Surinam Birds (Bull. Mus. Comp. Zool., vol. LXII, № 2, 1918, p. 33).

II. Gatunek poświerki wschodnio-syberyjskiej, *Emberiza jankowskii* został opisany w 1888 roku przez Taczanowskiego na podstawie jedynego okazu, nadesłanego z Siedmi przez Michała Jankowskiego. Już Taczanowski w swej pracy wyraził zdziwienie, że poświerka ta została odkrytą dopiero po 20 latach nieustannych badań polskich eksploratorów w tym kraju. Ponieważ i w następnych okresach nikt więcej poświerki tej nie spotkał, zrodziło się przypuszczenie, że ptak opisany przez Taczanowskiego albo jest mieszańcem dwu gatunków, albo ma ubarwienie anormalne. Autor po dokładnem porównaniu okazu *Emberiza jankowskii* z innemi gatunkami tego rodzaju, pochodzącymi z kraju Ussuryjskiego i z Korei, doszedł do przekonania, że *Emberiza jankowskii* jest przypuszczalnie mieszańcem *Emberiza leucocephalos* Gmel. i *Emberiza cioides cioides* Brandt, wobec czego proponuje skasowanie tego gatunku.

III. Autor opisuje nowy gatunek ścierwnika południowo-amerykańskiego pod nazwą *Cathartes occipitalis* sp. n. na podstawie starego samca, dostarczonego przez autora z Huambo (Peru N. E. 3700'). Gatunek ten, uważany przez Taczanowskiego za *Oenops* (*Carhartes*) *pernigra* Sharpe, różni się od wszystkich swoich współrodzajowców kolorem szyi oraz głowy, które są sine (ciemno-fioletowo-czerwone), tylko część ciemienia i potylicą są kościsto-białe. *Cathartes aura* i *C. falklandica* mają głowy pięknie czerwone, a *C. pernigra*, *C. urubitinga* i *C. burrovianus* mają głowy żółte.

B) DROBNE WIADOMOŚCI.

G. HEINRICH (Borówki, pow. Sępólno, Pomorze).

Larwa *Nematus crassus* Fall. — Die Larve von *Nematus crassus* Fall.

Die Larve von *N. crassus* Fall. ist nach Enslin „Die Tenthredinoidea Mitteleuropas“ nicht sicher bekannt. Ich lasse daher die Beschreibung der Larve folgen, aus welcher ich im vergangenen Jahr die genannte Blattwespe gezogen habe.

Hellgrün, glänzend. Auf dem Rücken 2 hellere Längslinien, zwischen welchen die Färbung dunkler als am übrigen Körper ist. Kopf grünlich mit 3 dunklen Striemen, von denen eine vom Scheitel nach der Stirn, die anderen vom Scheitel an den Kopfseiten bis zur Augenhöhe verlaufen. Die Larven frassen Ende Juni an *Rumex obtusifolius* L. Die Verpuppung erfolgte im Moos. Die Insekten schlüpften bereits Ende Juli. Die Determination erfolgte durch Herrn Prof. Schmiedeknecht. Die Zucht war mir bereits mehrfach misslungen, weil die Larven nicht ans Futter gingen und nicht entwicklungsfähige Hungerecocons lieferten. Erst wenn man die Rumexpflanze mit Wurzeln in einer Wasserflasche hält, bleibt sie frisch genug und wird von den Larven angenommen.

STRESZCZENIE.

Larwa *N. crassus* Fall. nie jest według Enslin'a „Die Tenthredinoidea Mitteleuropas“ napewno znana. Autor podaje wobec tego opis larwy, z której w roku zeszłym wyhodował wspomnianego pilarza.

Na grzbiecie 2 jaśniejsze linje podłużne, między którymi ubarwienie jest ciemniejsze niż na reszcie ciała. Głowa zielonkawa z trzema ciemnymi pręgami, z których jedna prze-

biega od ciemienia na czoło, dwie pozostałe od ciemienia na boki głowy aż do poziomu oczu. Larwy żywiły się w końcu czerwca liśćmi *Rumex obtusifolius* L.; przepoczwarzwały się we mchu. Owady dorosłe wychodziły już w końcu lipca. Określenia tego pilarza dokonał p. prof. Schmiedeknecht. Hodowla nie udawała mi się poprzednio kilkakrotnie, wskutek tego, że larwy nie przyjmowały pokarmu i dawały niezdolne do dalszego rozwoju poczwarki głodowe. Dopiero, gdy się *Rumex* z zachowaniem korzeni umieści w odpowiednim naczyniu z wodą, pozostaje on dostatecznie świeżym, i larwy się nim odżywiają.

STEFAN WEISSBERG.

O nowem stanowisku *Neuronia phalenoides* L. — Une nouvelle station de *Neuronia phalenoides* L.

Gatunek powyższy jest przed 4 zaledwie laty odkrytym elementem naszej fauny. Mianowicie Prüffer podał w t. I-ym niniejszego czasopisma *Neuronia phalenoides* L. z Gór Świętokrzyskich, i z Puszczy Rudnickiej pod Wilnem. W zeszłym roku otrzymałem od kol. J. Karpowicza jeden egzemplarz tego borealnego gatunku pochodzący z okolic Wołkowyska.

Okaz wspomniany przekazałem do zbiorów Polskiego Państwowego Muzeum Przyrodniczego. Zaznaczyć należy, że jest on największym znanym mi okazem *N. phalenoides* L. — siąg jego skrzydeł wynosi 69,5 mm., a długość ciała 25,5 mm.

R É S U M É.

L'auteur cite une nouvelle station poionaise du Trichoptère boréal *Neuronia phalenoides* L., à savoir — Wołkowysk (Comp. „Annales Zool. M. P. H. N.“ I, pag. 147).

C) WIADOMOŚCI Z MUZEUM.

DR. TADEUSZ JACZEWSKI.

Polska wyprawa zoologiczna do Brazylii w latach 1921—1924.
Itinerarium i krótkie sprawozdanie.

The Polish Zoological Expedition to Brazil in the years
1921—1924. Itinerary and brief report.

[Tab. XXXIII, XXXIV, XXXV].

The Polish Zoological Expedition to Brazil was planned and organized by the late Tadeusz Chrostowski, one of the keepers of the Polish Museum of Natural History at Warsaw. It was the first Polish scientific mission to tropical regions after the recovery of political independence by our country.

The chief aim of the expedition was an ornithological exploration of the western parts of the South-Brazilian state of Paraná, the eastern districts of which had been already partly explored by Chrostowski during his two former séjours in South America. It was, however, also decided to extend this time the studies and include some other groups of animals, especially so several orders of insects, as well as molluscs, myriapods and parasitical worms. It was thus intended to obtain ample material for the Museum and for the scientific investigations carried out at this institution.

The organisation of the expedition from the financial point of view was by no means an easy task considering the heavy economic crisis, which affected at the time our country, as well as other countries of Middle-Europe. The moderate funds granted by the Government had to be completed by private means consisting chiefly of small free gifts of different naturalists interested in the success of the expedition. It must be stated, however, that

the actual realisation of the whole enterprise is undoubtedly due, besides other favorable circumstances, to the great energy and ability of its initiator T. Chrostowski.

On December 4-th, 1921, the expedition left Warsaw. Its members were: T. Chrostowski—chief, and his two assistants: Stanisław Borecki, and the author of the present report. On Dec. 10-th we sailed from Bordeaux for South America on board of the French s. s. „Garrona“. During the passage already no opportunity was lost for collecting. Thus at Bordeaux (France), Vigo (Spain), Leixões (Portugal), Lisbôa (Portugal), Dakar (French Senegal) and Bahia (Brazil) small collections were made, chiefly of insects, myriapods and molluscs, which, although not exactly numerous, proved to be in many respects of great scientific interest. At Bahia some specimens of birds have been also collected.

On January 4-th, 1922, the expedition landed at Rio de Janeiro, where some time was spent on making necessary preparations, interrupted by short excursions in the neighbourhood of the city, during which some birds and insects were collected. The members of the expedition, assisted by the Polish Chargé d’Affaires Mr. W. Mazurkiewicz made also acquaintance with the Brazilian authorities, as well as with the local scientific institutions.

Having accomplished all these preparations, the expedition started by railway for the station Marechal Mallet, situated in the state of Paraná, which was chosen to be the starting point of the planned itinerary. Here final preparations were accomplished and during this time the chief of the expedition together with the author of the present report visited the capital of the state, Curitiba, in order to establish a connection with the Polish Consulate and with the Brazilian State Authorities. Finally on Feb. 2-d, the railway line was left and the actual exploration-itinerary began. As, however, intensive collecting was carried on during the almost fortnightly stay at Marechal Mallet, we ought to devote some lines to a short description of this locality.

Marechal Mallet (or São Pedro de Mallet) is a small town with about 1000 inhabitants, situated on the great railway line São Paulo — Rio Grande, on its section between the towns of Ponta Grossa and União da Victoria. Besides the railway station there

are also the headquarters of the municipal authorities¹⁾, some smaller institutions of public utility, as well as several schools, among which should be mentioned the Polish secondary school maintained by the Polish colonists. Marechal Mallet, being connected by railway with the neighbouring stations, is also a junction for several land roads running in the following directions: north to the station Roxo Roiz, west to the colony Cruz Machado, east to the colony Rio Claro and south to the station Dorizon. Marechal Mallet is situated at 25° 55' south latitude and 50° 18' west longitude, elevation above sea-level about 939 m. The town is almost surrounded by territories long since colonized and rather densely populated; the distance between the farms is in most cases less than 1 km. For this reason the locality has lost mostly its primitive aspect. Across the town itself and in its nearest vicinity run several small streams. The town is surrounded mostly by old „roças“²⁾, which owing to a progressive loss of fertility changed partly into poor pastures, covered with low grass („gramados“), partly into abandoned grounds with a vegetation consisting chiefly of low ferns („amambayal“³⁾) or of bushes („capoeira“).

Here and there grow single trees or groups of „herva matte“ (*Ilex paraguayensis* A. S.-Hill.), „pinheiros“ (*Araucaria brasiliensis* Rich.) and various palms. At some distance from the town remained some small but dense woods, fragments of ancient forests. The country about Marechal Mallet, as most parts of the Paraná-highland, is very hilly; at a distance of some 10 km. west begin the mountains of Serra da Esperança, well seen from the town.

Our expedition stayed at Marechal Mallet from Jan. 16-th till Feb. 2-nd, 1922, occupying a small house in the town itself and making collections during small excursions to the neighbourhoods. The fauna of this locality shows distinctly a strong influence of the long lasting presence of human habitation, thus there are prevailing, for instance among birds, those species which are common in any densely populated locality of Paraná, viz.

¹⁾ The Brazilian states are divided into districts called „municipios“.

²⁾ Cultivated grounds.

³⁾ From „amambaya“, collective name for ferns in the language Guarany.

the „pica-pao dos campos“ (*Colaptes campestris* Vieill.), the Bucconid „João-bobo“ (*Ecchaunornis chacuru* Vieill.), the Vireonid *Vireo chivi* Vieill., the Tyrannid „bem-te-vi“ (*Pitangus sulphuratus* L.) etc.; on the margins of streams the voice of „saracura“ (*Aramides saracura* Spix) can be often heard.

The whole first period of the march of the expedition, which began with the departure from Marechal Mallet and lasted until the arrival to the Salto de Ubá on the upper Ivahy, was accomplished by short, mostly one day long courses. At various localities which were passed, the expedition stopped, usually for a period of some two to four weeks, devoting this time for making collections. As transport means were used mules, rarely cars, as the itinerary lay chiefly across rather thinly populated regions, having almost no land roads suitable for car-traveling.

The first stop was made at a farm of a Polish colonist Mr. T. Strzelecki, 25 km. to the west from Marechal Mallet, situated in the mountains of Serra da Esperança on the upper Rio Claro; this locality is nearly 992 m. above sea-level. The connection of this place with Marechal Mallet is formed first by 22 km. of the land road Marechal Mallet — Cruz Machado and then by a 3 km. long „caminho de tropa“ (path) suitable for mules or horses only. We occupied a small chalet in the centre of a „herval“, i. e. a natural plantation of hervatrees. This place is surrounded with mountains covered mostly by rather untouched forest, where pinheiros are predominating, and the „taquarà“ (*Chusquea* sp?) forms in many parts the undergrowth; on the proper herval the forest is, of course, cut out with the exception of the herva-trees and of a few pinheiros.

Besides Rio Claro several smaller streams cross this place, some of them having their sources within the limits of the „herval“ itself. The largest of these streams, called Aroio da Cachoeira, forms a fairly high (some 80 m.) waterfall Salto do Boi Preto.

During the stay at this locality besides collecting in the nearest neighbourhoods (labels „Rio Claro, Serra da Esperança“) several excursions were made to the farm of another Polish colonist Mr. Wiśniewski, whos land is situated at a distance of some 5 km., on the other side of the road Marechal Mallet —

Cruz Machado; this place differs considerably in its aspect from the nearest surroundings of the „herval“ of Strzelecki. It is namely a so called „campina“, i. e. a land rendered sterile through a prolonged cultivation and repeated combustions of woods; the vegetation consists here of grass, ferns and low bushes with few scattered pinheiros and palms; in the centre there is a small pond of stagnant water, a thing rarely found in these regions; on this pond we have met some small „mergulhões“ (*Rolandria* sp.), the „jaçaná“ (*Jacana jacana* L.) and „saracuras“ (*Aramides saracura* Spix). In the neighbourhood of the „herval“ of Strzelecki there were only to be found some very small muddy pools close to the Rio Claro. Due to the high elevation of this locality above sea level the temperature fell some times at night, in spite of the summer time, as low as $+5^{\circ}\text{C}$. We have spent here the time from Febr. 3-d until Febr. 14-th, 1922.

Next we moved over to a locality called São Domingo or Fazenda Concordia, some 16 km. further to the west. The road thereto departs from the land road Marechal Mallet—Cruz Machado on the 27-th km. in the direction to Pinhão. São Domingo is situated already on the western side of Serra da Esperança, in a hilly highland, crossed by the valleys of various tributaries of the Rio Iguassú; this highland extends westwards to the town Guarapuava and even much beyond it. We camped at São Domingo in tents near a house being property of a Polish colonist Mr. F. Z a w a d z k i. Elevation above sea level about 1135 m. The surroundings of this place are rather densely inhabited by so called „caboclos“ i. e. Brazilians of Portuguese and Negro origin; here and there are found isolated farms of Polish, Ukraïnian or German colonists. The ancient forests are mostly cut out and the whole country changed into a „fachinal“, i. e. forms boscsages, small woods and lawns used as pastures for cattle and pigs; only pinheiros, palms and herba-trees have remained from the former vegetation. Among the low vegetation of this „fachinal“ we succeeded to meet the first specimen of the famous Furnariid *Leptastenura striolata* Pelz., whos nearest ally *Dendrophylax setaria* Temm. is fairly abundant in the high crowns of the pinheiros. At a distance of almost 1 km from our camp, began along the road to Pinhão vast and thick

boscages of taquará, with scarcely scattered trees among them; here were met rather numerous troops of „jacú“ (*Pelenope obscura* Temm.) as also various species of Formicariids (*Chamaeza brevicauda* Vieill., *Ch. ruficauda* Cab. & Heine, *Grallaria ochroleuca* Wied?). Running water was not exactly abundant in the neighbourhood: not far from our camp only a small stream was running, but several muddy ponds were to be found at various places. We remained here from Febr. 15-th till Febr. 28-th, 1922.

Moving further along the road to Pinhão the expedition stopped at a distance of some 8 km on the banks of the river Putinga, which joins further down with the Rio da Areia, left tributary of the Rio Iguassú. The land on the left bank of the Rio Putinga on both sides of the road belongs to Mr. M. Firmiano, who owns a local „venda“ or grocer's shop. We have chosen for camping a place on the very river side at a considerable distance upwards from the bridge, by means of which the road to Pinhão crosses here the Rio Putinga; elevation above sea level some 938 m. Close to our camp there began large marshy meadows, so called „banhados“, widely extended upwards along the river; among the grass and other low plants covering them were living numerous „perdizes“ (*Rhynchotus rufescens* Temm.) The river bank itself was mostly occupied by a so called „varzea“, a rather low and thin foliferous wood, here and there undergrown by taquará. Between the camp and the road was rising a hill side, partly rocky, covered mostly with pinheiros, herva-trees and tree-ferns, it formed the natural herval of the owner of this land. The Rio Putinga at this place is much wider (some 20 m.) than the Rio Claro in the mountains Serra da Esperança. We stayed here from March 1-st till March 12-th, 1922.

Next stop was made on the banks of the Rio da Areia, which at a distance of some 12 km north-west from the Rio Putinga crosses the road leading to Pinhão. Although our intention was to camp on the right side of this river, we had to abandon this plan for time being owing to a temporary damaging of the ferry-boat existing there, as also to the high stand of the river, which rendered impossible to ford it. We stopped therefore on the left bank of Rio da Areia at a distance of $1\frac{1}{2}$ km. upwards

of the ford, on the land belonging to Mr. B. Ferreira, one of the local inhabitants. The Rio da Areia is here some 35—40 m. wide; 4 km. upstream it forms a small waterfall. The left bank of the river was partly occupied by thin woods, partly by extended marshy meadows with scattered here and there muddy pools as also with groups of trees and bushes, similarly as on the banks of the Rio Putinga. Not far from the river began a „fachinal“, i. e. an intensively cleared forest serving as pasture-ground for the cattle and pigs of the rather numerous inhabitants of this locality. At some places herva-trees were prevailing forming natural hervals. A fairly large pond was lying in this fachinal at some 2 km from the river bank. Our camp, where we spent the time from March 13-th till March 28-th, 1922, was situated at 947 m. approximately above sea-level. During the stay at this locality collecting was carried on also on the other side of the river, where the „pinheiros“ forest was much less cleared and here and there densely undergrown by „taquará“. In the „fachinal“ on the left river bank we have hunt further specimens of *Leptastenura striolata* Pelz.

Almost constant rains, which were falling in Paraná during the first half of the year 1922, caused us much trouble as we were working and camping in the open. As the result of these rains there was also a constant danger of being flooded over by the rising waters of the Rio da Areia. Therefore, as soon as the ferry-boat on the river was repaired, we crossed it and chosed for the next stop a place in the propriety or „fazenda“ of „coronel“¹⁾ Durski, situated at a distance of some 5 km. from the river. We occupied here a chalet near a s. c. „barbaquá“ or herva-mill not working at the time, which was situated in the centre of an extended „herval“ serving also as a pasture-ground for horses and mules. The forest here was only slightly cleared and consisted chiefly of beautiful „pinheiros“, herva-trees and tree-ferns; The place was surrounded by a fence, so that neither cattle nor pigs could enter it and damage the low-growing vegetation. Big wood-peckers (*Ceophloeus galeatus* Temm. and *C. lineatus* L.) were very numerous here. A small stream was running close to our chalet, a little further there were several small sources,

1) „coronel“ — titular colonel of the national guard.

some of which formed on their course pools of almost stagnant water. The neighbourhoods to the west and south of the herval were covered by vaste and thick boscajes of „taquará“; to the east there were found extended „banhados“ and „campinas“, i. e. humid or arid grounds covered by low grass with single trees and bushes scattered here and there, as also with several muddy pools. One of these „campinas“, close to the road to Pinhão, was occupied by different farm-buildings of the „fazenda“, viz.: a living-house, barns and a chappel. The „campinas“ and „banhados“ were visited by troupes of „quero-quero“ (*Belonopterus cayennensis* Gm.) and various species of hawks (*Cerchneis sparveria cinnamomina* Sws., *Rupornis magnirostris* Gm.). The altitude of our camp above sea-level was some 996 m.; we have spent here the time from March 29-th till April 12-th, 1922.

Mooving further on towards Guarapuava, we made the next stop at a locality called Banhados, situated almost on the water partition line between the Rio da Areia and the Rio Jordão, both right tributaries of the river Iguassú. The distance between the „fazenda“ of C-el Durski and Banhados is some 30 km.; the path connecting these two localities is rather seldom frequented and is only suitable for mules and horses, on the streams there are hardly any bridges at all; at several places the path can be scarcely distinguished among the irregular cattle- or pig-trails running here and there across the „campinas“ and „fachinaes“.

Banhados is inhabited by few dozens of „caboclo“-families. We arranged our camp on an open slope, covered with low grass, near a nice stream of fresh water. Across this stream thick boscajes of „taquará“ were beginning, in the opposite direction there were extending open „campinas“ and „banhados“ which justified the name given to this place by its inhabitants. We remained here only a very short time, viz.: from April 13-th till April 17-th, as constant strong winds, from which we were practically not sheltered in our open camp, rendered all work most troublesom. The elevation of Banhados above sea-level was about 1145 m.

From Banhados we transferred our camp some 18 km. further on to the right bank of the above mentioned Rio Jordão, to a place distant only 6 km. from the town Guarapuava. We arranged our camp on the very river bank in a forest consisting mainly of „pinheiros“, various foliferous trees and tree-ferns; the

elevation above sea-level was here approximately 1005 m. We stayed at this place from April 18-th till April 27-th, 1922. Almost uninterrupted rains forced us to abandon this place rather in a rush in view of a serious danger of inundation. We moved thus further on, and having passed Guarapuava entered into the vast „campos“ or prairies, which surround this town.

The small town Guarapuava is situated almost in the centre of the State of Paraná, being nearly equally removed from the Atlantic coast and from the great Rio Paraná. Its geographic coordinates are: 25° 27' south latitude and 51° 24' west longitude; the elevation above sea-level is over 1100 m. There is no railway running through Guarapuava, but the town is connected by land-roads across the colony Prudentópolis with the stations of Ponta Grossa, Fernandes Pinheiro and Iraty. Another great land-road is going from Guarapuava westwards to the remote Foz do Iguassú, a village rather than a town situated on the river Paraná close to the Brazilian frontier with Argentine and Paraguay; from this latter road departs a branch southwards leading across Mangueirinha to those districts of the State of Paraná, which lie south of the Rio Iguassú. Besides these important land-roads there begin at Guarapuava several smaller roads and „caminhos de tropa“ connecting this town with various localities in the adjacent „campos“.

The population of Guarapuava reaches some 5000 persons. The town is the capital of the largest „município“ of the State of Paraná; this „município“ extends westwards almost to the valley of the river Paraná, northwards it reaches the Rio Ivahy. Besides the municipal authorities and institutions there are at Guarapuava several catholic churches, some schools, a post-office (with a mail service twice a week), a telegraph station, a bank and a fair number of shops; a local weekly „O Pharol“ is being published here. The town possesses electric light, all streets, however, are unpaved, even so the principal square „Praça da República“. The houses are mostly bungalows, the newer ones are of wood, the older — mostly of stones and lime, built in the Portuguese colonial style, with flattened tile-roofs sloping on four sides.

The adjacent „campos“ belong almost exclusively to various „fazendeiros“, i. e. richer land-owners of Portuguese origin. Only seldom we meet here with farms of Polish, German or Italian

colonists. The fertility of the „campos“ is very low, so that they serve only as pastures for rearing cattle, horses and mules, no agriculture being carried on here.

Guarapuava is not situated in the very centre of the „campos“, the forests almost touch the town from the eastern side; to the west and south-west the „campos“ extend for over 100 km., in other directions their extension is smaller. The „campos“ are not flat but rather hilly, the summits of the hills are often rocky, in the lower places there are found frequently marshes or even ponds of stagnant water. Besides this the country is crossed by numerous streams, which gradually join into smaller or larger rivers running all towards the Rio Iguassú. On the banks of these streams are often found small woods, s. c. „capôes“, formed chiefly by dwarf-„pinheiros“ and various other trees. The low vegetation of the „campos“ consists almost exclusively of bunch grass, often with bare intervals between the tufts, flowering annuals being practically absent.

The animal life of the „campos“ shows, of course, many peculiar characters, when compared with that of the forest-regions. Above the low grass there rise numerous termitaries built of red laterite lime, some of them being destroyed by „tatus“ (*Tatusia* and *Xenurus* sp. sp.); the holes of these *Xenarthra* are so numerous in the „campos“, that one must take great care when riding on horseback in order to avoid the horse putting his foot into them. Various hawks (*Cerchneis sparveria cinnamomina* S w s., *Polyborus tharus* M o l. and other species) and „campos“-owls (*Speotyto cunicularia grallaria* T e m m.) like to sit on the termitaries. Abandoned holes of the „tatus“ are often occupied by rattle-snakes (*Crotalus terrificus* L a u r.). On the „campos“ live numerous troupes of „quero-quero“ (*Belonopterus cayennensis* G m.) and ibises (*Theristicus caudatus* B o d d.). Walking across the grassy hills one often scares away „perdizes“ (*Rhinotus rufescens* T e m m.) and „codornas“ (*Nothura* sp.) or small troupes of „campos“-Dendrocolaptids (*Anumbius anumbi* V i e i l l.) and other smaller birds. High above in the air fly large black „corvos“ (*Catharista atratus brasiliensis* B o n.), birds which frequently are found also in towns. The „capôes“ are inhabited by numerous species of smaller Passerine birds.

We stopped in the „campos“ at a farm called Invernadinha, belonging to a Polish colonist Mr. M. L i g m a n, and situated some 8 km. northwards from Guarapuava, close to the road leading to various „caboclo“-settlements on the upper Rio das Marrecas. The elevation above sea-level was here about 1065 m. We stayed at Invernadinha from April 28-th till May 14-th, 1922. During this time we had the first experience of frost in these high-elevated regions of South Brazil: it was winter and the thermometer fell down sometimes in the early morning as low as $-2,2^{\circ}$ C.

Mooving further north, towards the upper Ivahy, we left again the „campos“ and entered into forest-regions, similar to those, that we passed on our way from Marechal Mallet to Guarapuava. We next stopped on the left bank of the upper Rio das Marrecas, at a distance of some 30 km. from Invernadinha, in a locality called Cará Pintada, inhabited rather densely by „caboclos“. We occupied here a house not far from the centre of the settlement. Cará Pintada, elevated some 1007 m. above sea-level, is surrounded partly by forests, partly by grounds showing various stages of cultivation; some of them are planted with „milho“ (maize), „feijão“ (black beans) or „mandioca“ (*Manihot utilissima* Pohl.), the remaining portions of land are left fallow and densely covered by various bushes and other plants. Extended „herveas“ are also found here, as well as several marshy meadows with scattered temporary pools of stagnant water, especially so close to the Rio das Marrecas. This river is over 30 m. wide here and runs almost directly northwards to meet much further down with the Rio São Francisco; after the junction the river, now called Rio Bello, flows into the Ivahy as its left tributary. Cará Pintada lies between Guarapuava and various colonies and settlements on the upper Ivahy, but it is a rather little frequented place, as the communication between the mentioned localities is chiefly maintained by the land-road running more to the east across the colony Prudentopolis. We remained at Cará Pintada from May 15-th till June 4-th, 1922.

At Cará Pintada ends the carriage-road departing from Guarapuava, further to the north, along the margins of the Rio das Marrecas, leads only a „caminho de tropa“ in a rather bad condition and very difficult for travelling. We followed it and

moved over to a very rarely frequented place, named Vermelho, situated at a distance of some 30 km. from Cará Pintada on the right side of the Rio das Marrecas, at 935 m. approximately above sea-level. The inhabitants of this place, some few poor „caboclos“, were so little civilized, that some of them ran away at our sight and concealed themselves in the forest thinking we were disguised Brazilian officers, who came with the purpose of recruiting them. This fact, however, is not so astonishing, if we consider that Vermelho lies almost on the limit of the inhabited zone of the State of Paraná, as to the north-west begin absolutely unpopulated virgin forests, which occupy the whole basin of the middle and lower Ivahy.

We occupied here a small abandoned house surrounded by an almost uncleared forest undergrown mostly by „taquará“; eastwards there extended large „banhados“, on the margins of which were found several ponds of stagnant water. During our stay at Vermelho, from June 6-th till July 5-th, 1922, we were able to record very low temperatures, viz.: on June 17-th in the morning — $3,4^{\circ}$ C., and on July 1-st at noon only $+ 6^{\circ}$ C.

Having left Vermelho we moved further north-eastwards crossing the rivers São Francisco and São Francisquinho and reached the valley of the upper Ivahy at a small village Therezina. This locality being situated only about 445 m. above sea-level shows very striking differences with regard to its flora and fauna, when compared with those we were passing hitherto. Many trees peculiar to the highland are absent here, also „pinheiros“ are not found, but this is probably due to their complete abolition by men. The neighbourhoods of Therezina are mostly occupied by plantations which cover in a picturesque manner the slopes of the narrow valley of the river. Among the plants cultivated here should be mentioned in first line bananas, sugarcane and rice; these three plants are not met with in the highlands, as they can not grow there successfully because of the morning-frosts during the winter. Besides plantations the slopes of the Ivahy-valley are here and there covered with small woods and bosques (s. c. „capueira“) of various wild plants which are growing on grounds that have been temporary abandoned for loss of fertility or other reasons. Primitive forests are totally absent in the surroundings of Therezina.

Among birds there are very numerous here the Icterid *Cacicus haemorrhous aphanes* Berl. and the Corvid *Cyanocorax chrysops* Vieill., called by the Brazilians „gralha branca“, which seems to replace here completely the species *Cyanocorax coeruleus* Vieill., or „gralha azul“, peculiar, at least in the State of Paraná, to the „pinheiro“-forests of the highlands. As to other species of birds which are frequent at Therezina, but are not found in the highlands, there could be mentioned such as *Pionopsitta pileata* Scop., *Stephanoxis loddigesi* Gould., *Malacoptila torquata* Hahn & Küst., *Mackenziaena severa* subsp?, *Myiozetetes similis* Spix, *Iridoprocne albiventer* Bodd., *Pitylus fuliginosus* Daud. and several others.

Therezina is a locality long since colonized by the Brazilian government; in former times it was more inhabited, now it is a small village of some few dozens of houses, with a post-office having a mail service only once a week. Therezina is, however, an important point for the adjacent more recent colonies Apucarana, Miguel Calmon (on the right bank of the Ivahy). Hervalzinho and Senador Correia (on the left bank of this river) as several roads connecting them join here and as there exists here a passage of the river Ivahy, maintained by a ferry-boat. We stayed at Therezina from July 8-th till July 31-st, 1922, occupying a small house, situated rather remotely from the centre of the village.

Moving further on we passed the colony Apucarana, then a large reservation-territory inhabited by Indians of the tribe Kaingang (called also in portuguese Coroados), and stopped next on the left bank of the Rio Ubasinho, a right tributary of the Rio Ivahy, not far from the „sede“ (central village) of a quite recent colony Candido de Abreu (or Rio Ubasinho). This place is distant from Therezina 54 km. northwards. Candido de Abreu was then just in state of being colonized, so that a great part of its territory was yet covered by ancient forests. Although the general character of the flora was at many places similar to that of Therezina, „pinheiros“ were growing here in abundance, herva-trees were, however, absent. A remarkable new element of the forests was the „palmito-molle“ (*Euterpe* sp?). The elevation above sea-level was here a little higher than at Therezina, at the house which we were occupying and which was some 27 km. distant from the Rio Ivahy, it was about 467 m.

The fauna was at Candido de Abreu in general little different from that of Therezina, but there were present here some species which as a rule prefer less populated localities with more primitive conditions of existence. Among mammals there were fairly common „cutias“ (*Dasyprocta* sp.), „cuatis“ (*Nasua* sp.) and the small „tamanduá-mirim“ (*Tamandua tetradactyla* L.); on the humid sand of the river-banks could be often found the tracks of „lontras“ (*Lutra paranensis* Rengger), „pacas“ (*Ceologenys paca* L.) and „capivaras“ (*Hydrochoerus hydrochoerus* L.). As to birds, there should be mentioned such species as *Pipile jacutinga* Spix., *Eupsitulla jandaya meridionalis* Pelz., *Baryphthengus ruficapillus* Vieill., *Dromococcyx pavoninus* Pelz., *Bailloniuss bailloni* Vieill., *Notharchus macrorhynches swainsoni* Gray et Mitch., *Celeus flavescens* Gm. and others; also very numerous were here the small hawks *Ictinia plumbea* Gm., which feed almost exclusively on swarming termites.

We spent at Candido de Abreu a comparatively longer period of time, viz. from August 2-nd till October 11-th, 1922, as besides collecting we had to make here the necessary preparations for the second part of our expedition, the travel on boat down the Rio Ivahy. Almost the entire north-western portion of the territory of the State of Paraná, occupied mainly by the basin of the middle and lower Ivahy, is covered with totally uninhabited virgin forests and forms a s. c. „sertão“ or jungle. The last human settlements are found some 30 km. downwards from Rio Uba-sinho, near the waterfall Salto da Ariranha on the Rio Ivahy; the distance therefrom till the emboscade of the Ivahy into the Paraná is in air-line about 300 km., following the course of the river it is, of course, much larger. The banks of the middle and lower Ivahy have been inhabited in former times; in the XVI and XVII centuries there existed here some settlements of Indians ruled by the Jesuits, but already some 300 years ago all these habitations have been devastated by the „bandeirantes“¹⁾ coming chiefly from São Paulo and were finally completely abandoned, the jungle having returned to its primitive state. Now only some few Indian tribes of Botocudos are said to nomadise here.

As there exist absolutely no roads or paths leading across

¹⁾ Portuguese name for „conquistadores“.

the jungle the only way of communication is offered by the Rio Ivahy itself. This river, however, can not be called strictly navigable as it forms on its course numerous waterfalls or „saltos“ and still more numerous larger or smaller rapids, called „corredeiras“ and „ligeirões“. For these reasons the river is practically not used as a way of communication between the eastern districts of the State of Paraná and the State of Matto Grosso, only very seldom some desperate „caboclo“ dares to start in a boat across the jungle; usually only short hunting- or fishing-trips are being undertaken by the inhabitants of the upper Ivahy, so that there exist among them only very few persons, which know the entire course of the river. No detailed exploration or mapping of the Ivahy has been done yet. Its course on the official maps is given approximately according to verbal informations, supplied by local hunters or fishermen, or following the old sketches of the Jesuits.

As our intention was to explore the fauna of the whole valley of the Rio Ivahy, we had to chose the river itself as our itinery. It was therefore necessary first to order two special boats or s. c. „canoas“, i. e. pirogues each made of a single trunk of wood, as only boats of this kind are suitable for navigation on such rivers and for passing of waterfalls and rapids. Ready boats of the necessary dimensions and carrying power were not available. Further we had to hire some rowers, which was not an easy task either, as the local inhabitants dreaded the mysterious and almost unexplored river. The finding of such men was complicated by the fact that on August 30-th our third companion, Mr. S. B o r e c k i, for reasons independent of himself had to leave the expedition and to give up the further travel; we were forced thus to search for four men instead of three, as we had previously planned. Another work to accomplish was the preparation of food supplies, as in the jungle only game and fishes were available; all these provisions¹⁾ had to be soldered into tin boxes, which when emptied had to be used again for packing up of the collections made. All this work took us much time and cau-

¹⁾ We took with us „feijão“, rice, „farinha de milho“ (maize-flour, prepared in a special manner), „mandioca“-flour, lard, coffee, „herva-mate“, sugar and salt; tobacco has also not been forgotten.

sed many troubles, but by far the most difficult was the finding of suitable men.

Having accomplished the greater part of the necessary preparations we transferred our camp to the right bank of the Ivahy at the very embouchure of the Rio Ubasinho. We have chosen this place as the starting point of our journey down the river, as close upwards the Ivahy forms a waterfall, Salto de Ubá, and it was, of course, more convenient to avoid it. This place was situated still within the limits of the colony Candido de Abreu and its flora and fauna showed practically no differences, when compared with the neighbourhoods of our former stop. The elevation above sea-level was 414 m. We camped here in tents from October 12-th till November 20-th, 1922, suffering much from swarms of „mosquitos“ (various species of *Simuliidae*). We finished during this time all preparations and succeeded at last in hiring the necessary men. They were all „caboclos“ from among the local inhabitants.

November 21-st, 1922, was an important date in the diary of our expedition. Two boats were loaded with about 1300 kg. of cargo and early in the morning we started into the unexplored and for every naturalist attractive jungle, beginning thus the most difficult and most interesting part of our itinerary. Of our boats one was 10 m long and made of „pinheiro“, the other was smaller, 7,5 m in length, of „cedro“ (*Cedrella* sp.). On November 23-d we reached the next waterfall, Salto da Ariranha, having passed on this section of the river 7 rapids, among which two were fairly difficult to pass. We met at the Salto da Ariranha the last human settlement inhabited by half a dozen of „caboclo“-families. Among these inhabitants we found a certain Mr Sebastião da Cunha, who has passed twice the whole river Ivahy by boat some ten years ago. This man gave us from his memory some informations concerning the river and especially the disposition of various waterfalls and rapids, as well as some hints about the method of passing them. Although all these information had only an approximate certainty, they proved to be very useful to us in our further travel, as none of our rowers did know the whole course of the river.

On November 26-th we left Salto da Ariranha. The rapids and waterfalls became now gradually more and more numerous

and crowded together; at some places they were separated from each other hardly by few hundreds of meters, so that often having just passed one we almost immediately encountered the next. Especially difficult to pass was the section of the river between the Salto da Pindahyba and the embouchure of the Rio Corumbatahy, a left tributary of the Ivahy. Here several rapids were extended over 5—6 km, and the passage of them took us often a whole day of very hard work under the ardent rays of the subtropical sun. As a rule the passage of a rapid simply by boat proved to be impossible; we had to descend into the water and to wade guiding the boats through various natural channels. Often it was necessary to unload partly the larger boat, to bring both boats across the difficult and dangerous places, and to make then several courses up and down with the smaller one in order to transport in this way the rest of the cargo. On waterfalls we had to unload totally both boats and to let them slide down on ropes, the cargo then had to be transported along the bank, a necessary path being in these cases cut out by „facôes“¹⁾ through the jungle. The waterfalls on the part of the river as far down as the Rio Corumbatahy were all comparatively low, so that there was no necessity anywhere to pull the boats out ashore in order to transport them along the bank.

By far more trouble than the waterfalls and rapids caused us various annoying insects. In the morning and in the afternoon hours swarms of „mosquitos“ gave us not a single moment of rest; during the hottest part of the day, about noon, they disappeared, but extremely numerous small bees (various species of *Meliponidae*) took their place; these otherwise harmless insects do not bite, but they cover densely all exposed parts of the human skin and lick off the sweat in a most irritating way; during meals all dishes were literally packed with them, and it was even impossible to make a cigarette without several being rolled in with the tobacco. The only place free from these little annoyers was the middle of the river. So far the nights were free of all insects.

¹⁾ „Facão“, in the Spanish Republics of South America called „machete“, is a large and wide sabre-like knife used for cutting out paths in the thick undergrowth of the forests and woods.

Besides the provisions taken by us in starting this part of our itinerary, meat was supplied in abundance by „capivaras“, „veados“ (*Mazama* sp.), „jacutingas“ (*Pipile jacutinga* Spix) and various species of ducks (chiefly *Cairina moschata* L. and *Merganser brasiliensis* Vieill.), as also by fishes, which are very numerous in the Ivahy. At times we had occasion to take honey of the *Meliponidae*. On the banks of the river numerous wild orange trees were growing, the sour fruits of which were a most refreshing variety in our diet.

Almost immediately after passing the Salto da Ariranha the „pinheiros“ disappeared, the forests on the banks consisted now only of various foliferous trees. The river itself and the banks were animated by numerous aquatic and semi-aquatic birds as cormorants (*Carbo vigua* Vieill., local name „biguá“), darters (*Anhinga anhinga* L., called by the „caboclos“ „biguátinga“ or white „biguá“), ducks (*Cairina moschata* L., *Merganser brasiliensis* Vieill. and others) and herons (*Ardea cocoi* L., *Butorides striata* L. and various species of *Tigrisoma*). On the bushes overhanging the water were often seen kingfishers (*Chloroceryle amazona* Lath. and *C. americana viridis* Vieill.) and Galbulids (*Jacamaralcyon tridactyla* Vieill.). In the forests close to the river one of the most common birds seemed to be the Momotid *Baryphthengus ruficapillus* Vieill., the monotonous voice of which filled the forest at dawn and at dusk. Mammals were seen much more seldom, as it is generally the case in Brazilian forests. On the river itself we met often only single specimens or small troops of „capivaras“, „lontras“ (*Lutra paranensis* Renger) and „ariranhas“ (*Pteronura brasiliensis* Zimm.), several times also „veados“ (*Mazama* sp.) swimming across the river. Many times we heard the voices of „micos“ (*Cebus* sp.) or the melancholic concerts of the „bugios“ (*Alouatta* sp.). Tapirs or „antas“, as they are called by the „caboclos“, were never seen by us in day time; only very numerous tracks were noticed on the humid lime of the banks. Of the largest Brazilian Felid, the „onça“ (*Felis onca* L.) we have found also only the tracks three times. Both the „capivaras“ and various species of aquatic birds became astonishingly tame as we proceeded down the river, so that often we were able to approach them quite closely. In

the water we frequently saw crocodiles (*Caiman latirostris* Daud.), but not very large ones¹⁾.

We moved down the river slowly, stopping usually only for a short time to take our noon meal, and camping at night on the bank. Collections were made all the time during our daily courses, as well as during several longer stops made from time to time at various convenient places²⁾.

On December 25-th, 1922, we reached the embouchure of the Rio Corumbatahy. Here are said to exist ruins of an ancient settlement of the Jesuits, called Villa Rica, but we could not trace them. It is worth mentioning, that we met here three lonely „pinheiros“ among the other trees of the forest. Further down the river became more and more navigable, the rapids were more scattered and easier to pass. On January 2-nd, 1923, we reached the largest waterfall of the Ivahy, Salto das Bananeiras, 10—12 m. high. Our usual method of descending the boats proved quite impossible here and we had to pull them out ashore and drag them along the bank some 50—60 m.; this was, however, the only place, where we had to apply such a method to pass a waterfall.

Downwards of the Salto das Bananeiras the aspect of the forests changed considerably; they were here thickly undergrown with „taquarassú“ (a spiniferous Bamboo-species); the river here was still better for navigation. On Jan. 8-th, 1923, we have passed the last larger rapid, called Corredeira de Ferro, and on Jan. 11-th we reached the embouchure of Rio Fundo, a left tributary

¹⁾ The specimen brought by us for the Museum measures 1,43 m. in length.

²⁾ The specimens collected are labeled according to the following sections of our itinerary:

from Nov. 22 till Nov. 27, 1922	—	R. Ivahy, Salto da Ariranha;
„ Nov. 28 „ Dec. 6 „	—	„ Salto da Pindahyba;
„ Dec. 7 „ Dec. 10 „	—	„ Barra do Rio do Peixe;
„ Dec. 11 „ Dec. 19 „	—	„ Salto do Cobre;
„ Dec. 20 „ Dec. 22 „	—	„ Barra do Rio Bom;
„ Dec. 23 „ Jan. 2, 1923	—	„ Villa Rica;
January 3, 1923	—	„ Salto das Bananeiras;
from Jan. 4 till Jan. 6 „	—	„ Corredeira do Pary;
„ Jan. 7 „ Jan. 13 „	—	„ Corredeira de Ferro;
„ Jan. 14 „ Jan. 15 „	—	„ Ilha do Mutum.

of the Ivahy. From this place down the rapids completely disappeared and the banks of the river became lower and partly covered by open „banhados“ instead of dense forests. On Jan. 14-th we arrived finally at the place where the Ivahy joins with the powerful Paraná, one of the largest rivers of the world; the geographical coordinates of this point are approximately 23°14' south latitude and 54°24' west longitude; elevation above sea-level is about 260 m.

I must state here, that the success of our travel down the Ivahy, during which we have passed 10 waterfalls and over 75 rapids, was greatly due to the ability and courage of our four rowers: João Napoleão dos Santos, Thomaz Diaz Baptista, Eugenio Affonso de Oliveira and Lino Leopoldo de Mattos, all „caboclos“, inhabitants of the neighbourhoods of Candido de Abreu on the upper Ivahy. They proved to be perfect gentlemen, worthy of their ancestors, ancient portuguese discoverers of South America. During our common travel they were really more companions than employees.

Our intention was to make a longer stop some 12 km. downwards of the embouchure of the Rio Ivahy, at a locality, which was marked on the maps available to us as Porto Xavier da Silva. Directing our boats thereto we passed the mouth of a small river Rio do Veado, left tributary of the Paraná; here we met two Indians of the tribe Cayuá, which were the first men seen by us since we left Salto da Ariranha, seven weeks ago. These Indians told us that Porto X. da Silva has been abandoned some time ago, and really arriving there we found it in a state of complete desertion. A house and some chalets existed still but nobody was living there; from a wall-calendar found in the house we saw that the place was given up in 1921. The place was, however, animated by troops of big „araras“ (*Ara chloroptera* Gray); we met here also for the first time the large Rhamphastid *Rhamphastos toco* Müll., which replaces in these regions another species (*Rh. dicolorus* L.), which is common in the highlands and along the course of the upper Ivahy.

We remained at Porto X. da Silva a few days and on Jan. 17-th, 1923, we moved further to the south, down the Rio Paraná, with the intention to reach Porto Guayra, the nearest inhabited locality, situated close upwards of the great waterfalls Sal-

tos das Sete Quedas. The Paraná does not flow in these regions in a single bed, but it is split up by numerous islands into several branches. The greatest of these islands is the large Ilha Grande das Sete Quedas, which extends from Porto X. da Silva down almost to the great falls; the width of the various branches of the Paraná is very different. The navigation here is carried on along the right bank of the river, i. e. along the coast belonging to the State of Matto Grosso. The left bank, which lies in the State of Paraná, as well as the numerous islands, are completely uninhabited as far down as the mouth of the Rio Pequiry. The islands are mostly low, covered with „banhados“ edged by small woods. Only here and there, where some hills touch the river, the banks are a little higher and even partly rocky.

We moved down keeping close to the left bank of the river in order not to get lost among the islands and thus avoid an unexpected approach to the dangerous great falls of Sete Quedas. This precaution was all the more necessary as the waters of the Paraná at that time were exceptionally high.

Already at our first night camping after having left Porto X. da Silva we heard the far thunder of the powerful falls. On Jan. 19-th, 1923, we passed the embouchure of the Rio Pequiry and the first human habitations near it; soon after we reached Porto Guayra, a locality which gave us an impression of perfect civilization, when compared with the virgin jungle which we have just passed.

Porto Guayra (or Porto Monjoli) is a settlement belonging to a company, called „Empresa Matte-Larangeira“, which is exploiting the „hervaes“ in Matto Grosso. The „herva“ is brought here by large boats coming from the upper part of the Rio Paraná and its various right tributaries. As further down the navigation is rendered impossible by the falls, there runs along the left bank of the river a narrow-gauge railway connecting Porto Guayra with Porto Mendes, a settlement lying 60 km. southwards, at a place, where the Paraná is again navigable. Here the „herva“ is loaded on steamers, which bring it further down to Argentine, who is the main consument of this product. At Porto Guayra are located the headquarters of the local administration of the company, as also the necessary repair shops

of the railway. The inhabitants are all in the employ of the company. The settlement possesses electric light and even a waterwork; there is also a pharmacy and a hospital; the place is rendered healthy due to the forest being cut down in a circumference of almost 3 km.

The inhabitants of Porto Guayra are almost exclusively Argentinians and Paraguayans, so that the languages used here are chiefly Spanish, called „castellano“, and the Indian idiome Guarany, which is spoken by the majority of Paraguayans. The Argentinian currency „peso“ is generally used and preferred to the Brazilian „milreis“. All this causes one to feel here, in this remote corner of the State of Paraná, only formally on Brazilian territory.

The powerful Saltos das Sete Quedas (called also Salto Guayra) are almost 45 m. high. They consist of several falls which are scattered among a great number of small, rocky islands, so that some of them are even invisible from the bank of the river. The Paraná above the falls is several km. wide, beneath them the river is considerably narrowed, its width becoming only 80 m.

At Porto Guayra we sold our boats and released three of our rowers, who returned home across Porto Mendes, Porto Alica, Campo Mourão and Serra da Pitanga to Candido de Abreu, where they were hired by us. The fourth of our men, Lino L. de Mattos, remained with us till the end of our itinerary. We did not remain at Porto Guayra, as this rather densely inhabited place is not very convenient for collecting, but moved further on and stopped 16 km. southwards at a locality called Capivary¹⁾. We were permitted by the administration of the company to occupy here a small house situated by the railway and surrounded partly by dense forests, partly by grounds formerly cultivated and now covered with small woods and bushes. The elevation of this place above sea-level was about 240 m. We stayed here from Jan. 23-rd till Febr. 26-th, 1923.

From Capivary we moved over by railway to Porto Mendes and camped here in a forest, situated some 1,5 km. far from the settlement, near a nice stream running into the Paraná.

¹⁾ The specimens collected here are labeled „Rio Paraná, Salto Guayra“.

This locality differed little from the surroundings of our former stop; the elevation above sea-level was some 220 m. We remained here from Febr. 27-th till March 16-th, 1923.

From Porto Mendes we took the steamer going down the Paraná to Foz do Iguassú, a locality lying some 5 km. upwards of the confluence of the Rio Iguassú with the Paraná. At this place meet the frontiers of Brazil, Argentine and Paraguay. The Paraná between Porto Mendes and Foz do Iguassú offers quite a different aspect than on its section above the falls of Sete Quedas: the banks are very high and often rocky, the river is comparatively narrower and very deep, the current is rapid and forms many waterwhirls, dangerous for smaller boats. The banks are mostly covered with thick forests, interrupted at several places by cultivated grounds, especially so round the various harbours scattered on the Brazilian and Paraguayan side; the Paraná forms here the frontier between Brazil and Paraguay.

On March 18-th, 1923, we arrived at Foz do Iguassú, a small Brazilian town, the siege of many different government institutions, because of it being situated near the frontier; Foz do Iguassú is also the centre of a „município“. The geographical coordinates are $25^{\circ}34'$ south latitude and $54^{\circ}47'$ west longitude; elevation above sea-level 205 m. We reached here thus the most southern and the most low situated point of our itinerary.

As it was mentioned above the town is connected with Guarapuava by a land-road, which forms here the only way of communication with the larger centres of the State of Paraná. The communication with Argentine is much more convenient, being maintained by steamers, which run from Porto Mendes down as far as the town Posadas, capital of the Argentinian territory of Misiones.

The nearest neighbourhoods of Foz do Iguassú are covered with small woods and boscages interrupted here and there by plantations of bananas or other cultivated plants.

We stayed at Foz do Iguassú from March 18-th till March 25-th, 1923, occupying a house situated at the outskirts of the town, close to the beginning of the road to Guarapuava. During this time we have made on March 23-rd and 24-th a small excursion to Puerto Bertoni, residence of the well known South-American naturalist Dr. M. S. Bertoni; this place is situated

not far from Foz do Iguassú down the river Paraná on its right, i. e. Paraguayan bank. Having been most cordially received by Dr. Bertoni, and having visited his nice botanic garden, as well as his local museum, we returned to Foz do Iguassú by a road leading across Argentinian territory and connecting Puerto Iguazú (on the left bank of the Paraná, opposite Puerto Bertoni) with Puerto Aguirre (on the left bank of the Rio Iguassú).

On March 25-th, 1923, we began the last part of our itinerary, i. e. the way towards Guarapuava. We intended to make on this course several longer stops¹⁾. We took thus from Foz do Iguassú a large horse-cart to a place called Pinheirinhos, situated 72 km. eastwards from the banks of the Paraná. Along the road, which crosses mostly thick forests, runs a telegraph line; human habitations are very scattered here, the distances between them being often some 30—40 km. We arrived at Pinheirinhos on March 28-th, 1925, and stopped at the house of Mr. Pedro de Paula Martins (called also Pedro Castellano), a guard of a section of the telegraph line and almost the only inhabitant of this place. The surroundings of Pinheirinhos are covered with the exception of some small cultivated areas by thick virgin forests. The place has received its name from the few „pinheiros“ growing here; this is, however, only a small isolated „pinheiros“-wood, not connected directly with the continuous „pinheiros“-forests, which begin some 60 km. further east. The elevation above sea-level is here approximately 390 m.

Already during our stay at Capivary and at Porto Mendes the condition of our health was getting somewhat bad, although in general we felt yet comparatively strong. Having arrived at Pinheirinhos suddenly all three of us, i. e. Mr. Chrostowski, our Brazilian helper and myself, fell ill with malaric fever, which infection we probably caught at Foz do Iguassú or even at Porto Mendes, as Pinheirinhos is already a place not affected by this illness.

Here, on April 4-th, 1923, died our chief, Mr. Chrostowski. His sudden and rather rapid death was probably due to a complication of malaric fever with pneumonia, as also to the already exhausted state of his organism, caused by the

¹⁾ The distance between Foz do Iguassú and Guarapuava is 442 km.

hardships of the travel. He has been buried at Pinheirinhos, at the road side, according to the local customs. As soon as I saw that the condition of Mr. Chrostowski was becoming serious, I wired to Foz do Iguassú for medical aid. It arrived, however, too late, so that only our Brazilian helper and myself could be assisted by Mr. M. Prevot, a Pole living at Foz do Iguassú, and by Mr. H. Schinke, an employee of the State prophylactic Service, who answered my call. I take the opportunity to thank most cordially these two gentlemen, as well as Mr. J. Schimmelpfeng, chief of the „município“ of Foz do Iguassú, who informed about our misfortune the President of the State of Paraná and took great interest in this case, giving all possible assistance.

I remained at Pinheirinhos till April 23-rd, 1923, continuing the collecting work, and then moved further on to the east across the localities Catanduvas and Larangeiras to the most western Polish colony Coronel Queiroz, called also Amolafaca, where I arrived on May 5-th, 1923. This colony is situated already in the region of highlands, between the small rivers Rio da Tapera and Rio Cantagallo, both running south towards the Rio Cavernoso, right tributary of the Iguassú. The elevation above sea-level is here about 920 m. The territory of the colony is mostly covered by typical „pinheiros“-forests, but it shows already a character somewhat transitory to the „campos“ surrounding Guarapuava: here and there are scattered larger or smaller „campiñas“, i. e. areas deprived of trees, covered with grass and low ferns.

Coronel Queiroz is a quite recent colony; it was just in the state of being populated; the grounds are here colonized privately by a Polish company, which has the intention to concentrate here the descendents of former colonists.

I spent here the time from May 5-th till July 4-th, 1923, living at the house of Dr. Józef Czaki, a Polish physician and naturalist settled in Brazil. This circumstance enabled me to release the last of our men hired at Candido de Abreu. I am much indebted to Dr. Czaki not only for his cordial hospitality, but also for medical assistance which he gave me, as I was still suffering from relapses of malaric fever. During all my stay at Coronel Queiroz the collecting work, however, was going on in the usual way.

On July 4-th, 1923, I left Coronel Queiroz and started definitely my way home. I went in a horse-cart across Guaruapuava and further on across Prudentópolis, Ibituva and Conchas to the town of Ponta Grossa, where I took the railway and arrived at Curitiba on July 11-th, 1923.

Here I had still much work with final packing of the collections and with different formalities connected with their forwarding to Europe. Besides that I was collecting in the neighbourhoods of the town, especially at a place called Bacachery. At last on October 13-th, 1923, all the collections of the expedition together with those presented to our Museum by Dr. J. Czaki and by several other persons, were loaded at Paranaguá on board of the Polish training ship „Lwów“ sailing to Europe. I left Brazil only on Febr. 26-th, 1924, from Santos on board of the Dutch s. s. „Gelria“ and arrived at Warsaw on March 18-th, 1924.

All the collections brought form part of the scientific materials of the Polish Museum of natural History at Warsaw, and a great part of them is at present being studied¹⁾.

Closing the present report I wish to express my deepest gratitude to all the persons and institutions, who have in various way assisted our work, especially to the Brazilian Federal and State Authorities and to the Polish Consuls at Curitiba, Mr. K. Głuchowski and Mr. Z. Miszke.

¹⁾ So far the following two papers based upon these collections have been published:

Jaczeński T. Contributions to the knowledge of some West-European Heteroptera, chiefly Corixidae. (Ann. Zool. Mus. Pol. Hist. Nat., Warszawa; 4, 1925; pp. 126—140, t. XIX).

Kremky J. Neotropische Danaididen in der Sammlung des Polnischen Naturhistorischen Staatsmuseums in Warschau. (Ibidem; 4, 1925; pp. 141—275, tt. XX—XXVIII).

Wykaz instytucji i towarzystw naukowych, z którymi Polskie Państwowe Muzeum Przyrodnicze prowadzi wymianę wydawnictw.

Liste des institutions et sociétés scientifiques, qui se trouvent en relation d'échange de publications avec le Musée Polonais d'Histoire Naturelle. — Varsovie.

Według stanu z dnia 1/XII 1925 roku.

zestawił

Dr. TADEUSZ JACZEWSKI.

POLSKA (POLOGNE).

1. Bydgoszcz. Redakcja „Archiwum Rybactwa Polskiego”.
2. Cieszyn. Redakcja „Przyrodnika”.
3. Hel. Morskie Laboratorium Rybackie.
4. Kraków. Polska Akademia Umiejętności.
5. „ Biblioteka Uniwersytetu Jagiellońskiego.
6. „ Instytut Botaniczny Uniwersytetu Jagiellońskiego.
7. „ Muzeum Fizjograficzne Pol. Ak. Um.
8. „ Zakład Anatomji Porównawczej Uniwersytetu Jagiellońskiego.
9. „ Zakład Zoologii Uniwersytetu Jagiellońskiego.
10. Lwów. Biblioteka Narodowego Zakładu im. Ossolińskich.
11. „ Biblioteka Uniwersytetu Jana Kazimierza.
12. „ Instytut Zoologiczny Politechniki Lwowskiej.
13. „ Muzeum im. Dzieduszyckich.
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15. „ Polskie Towarzystwo Przyrodników im. Kopernika.
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18. Poznań. Biblioteka Uniwersytetu Poznańskiego.
19. „ Instytut Zoologii Uniwersytetu Poznańskiego.

20. Poznań. Redakcja „Rybaka Polskiego“.
21. „ Zakład Anatomji Porównawczej i Biologii Ogólnej Uniwersytetu Poznańskiego.
22. „ Zakład Biologii Ogólnej Wydziału Lekarskiego Uniwersytetu Poznańskiego.
23. „ Zakład Zoologii Ogólnej i Entomologii Stosowanej Uniwersytetu Poznańskiego.
24. Puławy. Państwowy Instytut Naukowy Gospodarstwa Wiejskiego.
25. Skierniewice. Instytut Ochrony Lasu i Entomologii.
26. Suwałki. Stacja Hydrobiologiczna na Wigrach.
27. Warszawa. Biblioteka Uniwersytetu Warszawskiego.
28. „ Instytut im. M. Nenckiego Towarzystwa Naukowego Warszawskiego.
29. „ Państwowy Instytut Geologiczny.
30. „ Polskie Towarzystwo Geograficzne.
31. „ Polskie Towarzystwo Krajoznawcze.
32. „ Redakcja „Akwarjum i Terrarium“.
33. „ Stacja Ochrony Roślin.
34. „ Towarzystwo Botaniczne.
35. „ Towarzystwo Miłośników Wiedzy i Przyrody.
36. „ Towarzystwo Naukowe Warszawskie.
37. „ Zakład Anatomji Opisowej Uniwersytetu Warszawskiego.
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40. „ Zakład Geologiczny Uniwersytetu Warszawskiego.
41. „ Zakład Systematyki Roślin Uniwersytetu Warszawskiego.
42. „ Zakład Zoologiczny Szkoły Głównej Gospodarstwa Wiejskiego.
43. „ Zakład Zoologiczny Wolnej Wszechnicy Polskiej.
44. „ Zakład Zoologiczny Uniwersytetu Warszawskiego.
45. Wilno. Biblioteka Uniwersytetu Stefana Batorego.
46. „ Zakład Anatomji Porównawczej Uniwersytetu Stefana Batorego.
47. „ Zakład Biologii Ogólnej Uniwersytetu Stefana Batorego.
48. „ Zakład Zoologii Uniwersytetu Stefana Batorego.
49. Zakopane. Muzeum Tatrzańskie im. D-ra T. Chałubińskiego.

AFRYKA POŁUDNIOWA (AFRIQUE MÉRIDIONALE).

50. Bulawayo. The Rhodesia Museum.
51. Pietermaritzburg. The Natal Museum.

ALGER (ALGÉRIE).

52. Alger. Société d'Histoire Naturelle de l'Afrique du Nord.

ANGLJA (ANGLETERRE).

53. Bristol. The Bristol Naturalists, Society.
54. Cambridge. Philosophical Society.
55. Cardiff. National Museum of Wales.
56. London. British Museum of Natural History.
57. " Imperial Bureau of Entomology.
58. " Linnean Society of London.
59. " Zoological Society of London.
60. Manchester. Conchological Society of Great Britain and Ireland.
61. Tring. Zoological Museum.

ARGENTYNA (ARGENTINE).

62. Buenos Aires. Sociedad Ornitológica del Plata.

AUSTRALJA (AUSTRALIE).

63. Adelaide. The South Australian Museum.
64. " The University of Adelaide.
65. Brisbane. The Queensland Museum.

AUSTRJA (AUTRICHE).

66. Graz. Naturwissenschaftlicher Verein für Steiermark.
67. " Steiermärkisches Landesmuseum Joanneum.
68. Innsbruck. Tiroler Landesmuseum Ferdinandeum.
69. Klagenfurt. Naturhistorisches Landesmuseum.
70. Wien. Naturhistorisches Staatsmuseum.
71. " Zoologisch-botanische Gesellschaft.

BELGJA (BELGIQUE).

72. Bruxelles. Académie Royale de Belgique.
73. " Société Royale des Sciences Médicales et Naturelles.
74. " Société Royale Zoologique.
75. Namur. Société Entomologique Namuroise.

BRAZYLJA (BRÉSIL).

76. Belem do Pará. Museu Goeldi de Historia Natural e Ethnographia.
77. Rio de Janeiro. Instituto Oswaldo Cruz.
78. " Museu Nacional.
79. " Sociedade Brasileira de Ciências.
80. São Paulo. Museu Paulista.

BULGARJA (BULGARIE).

81. Sofia. Българското Ентомологично Дружество.
82. " Царски Ест. Ист. Музей.

CEYLON (CEYLAN).

83. Colombo. The Colombo Museum.

CHILI (CHILE).

84. Santiago. Redacción de la „Revista Chilena de Historia Natural“ y de los „Anales de Zoología Aplicada“.

CZECHOSŁOWACJA (ČECHOSLOVAQUIE).

85. Praha. Narodni Museum.

DANJA (DANEMARK).

86. Kjöbenhavn. Dansk Naturhistorisk Forening.
87. „ Danske Biologiske Station.
88. „ Universitets Zoologiske Museum.

EGIPT (ÉGYPTE).

89. Le Caire. Société Royale Entomologique d'Égypte.
90. „ Zoological Survey of Egypt.

ESTONJA (ESTHONIE).

91. Tallin. Eesti Tallinna Muuseum.

FINLANDJA (FINLANDE).

92. Helsinki, Helsingfors. Societas pro Fauna et Flora Fennica.
93. „ Societas Scientiarum Fennica.
94. „ Societas Zoologico-Botanica Fennica Vanamo.
95. Turku, Åbo. Turun Suomalaisen Yliopisto.

FRANČJA (FRANCE).

96. Besançon. Société d'Histoire Naturelle du Doubs.
97. Bordeaux. Musée d'Histoire Naturelle.
98. „ Société Linnéenne de Bordeaux.
99. „ Société Scientifique d'Arcachon.
100. Carcassonne. Société d'Études Scientifiques de l'Aude.
101. Cherbourg. Société Nationale des Sciences Naturelles et Mathématiques.
102. Dijon. Académie des Sciences, Arts et Belles-Lettres de Dijon.
103. La Rochelle. Société des Sciences Naturelles de la Charente-Inférieure.
104. Nancy. Laboratoire de Zoologie de l'Université.
105. Nantes. Société des Sciences Naturelles de l'Ouest de la France.
106. Nice. Société des Lettres, Sciences et Arts des Alpes Maritimes.

- 107. Paris. Laboratoire de Zoologie de l'Université.
- 108. " Muséum National d'Histoire Naturelle.
- 109. Toulon. Académie du Var.
- 110. Toulouse. Société d'Histoire Naturelle.
- 111. Versailles. Société des Sciences Naturelles et Médicales de Seine-et-Oise.

HISZPANJA (ESPAGNE).

- 112. Barcelona. Junta de Ciencias Naturales.
- 113. " Museo de Ciencias Naturales.
- 114. Madrid. Museo Nacional de Ciencias Naturales.
- 115. " Real Sociedad Española de Historia Natural.
- 116. Valencia. Laboratorio de Hidrobiología Española del Instituto General y Técnico.
- 117. " Laboratorio de Historia Natural del Instituto General y Técnico.
- 118. Zaragoza. Sociedad Ibérica de Ciencias Naturales.

HOLANDJA (PAYS-BAS).

- 119. Amsterdam. Nederlandsche Entomologische Vereeniging.
- 120. Haarlem. Hollandsche Maatschappij der Wetenschappen.
- 121. Leiden. Rijks Museum van Natuurlijke Historie.

JUGOSŁAWJA (ROYAUME S. H. S.).

- 122. Beograd. Muzej Srpske Zemlje.
- 123. " Srpska Kraljevska Akademija Nauka.
- 124. Ljubljana. Zooloski Institut Univerza.
- 125. Zagreb. Zoologicki Muzej.

KANADA (CANADE).

- 126. Montreal. The McGill University.
- 127. Ottawa. Geological Survey of Canada.
- 128. Quebec. Redaction du „Naturaliste Canadien“.

LUKSEMBURG (LUXEMBOURG).

- 129. Luxembourg. Institut Grand-Ducal de Luxembourg.
- 130. " Société des Naturalistes Luxembourgeo

ŁOTWA (LETTONIE).

- 131. Riga. Naturforscher-Verein.

MALTA (MALTE).

- 132. Valetta. Museum of Natural History of the University.

MEKSYK (MEXICO).

133. Mexico. Dirección de Estudios Biológicos.

NIEMCY (ALLEMAGNE).

134. Berlin. Zoologisches Museum.
135. Berlin-Dahlem. Deutsches Entomologisches Institut.
136. Breslau. Verein Schlesischer Ornithologen.
137. " Zoologisches Institut und Museum der Universität.
138. Frankfurt a. M. Senckenbergische Naturforschende Gesellschaft.
139. Görlitz. Naturforschende Gesellschaft.
140. Hamburg. Zoologisches Staats-Institut und Zoologisches Museum.
141. Kiel. Naturwissenschaftlicher Verein für Schleswig-Holstein.
142. München. Ornithologische Gesellschaft in Bayern.
143. " Zoologische und vergleichend-anatomische Sammlung des Bayerischen Staates.
144. Stuttgart. Württembergische Naturalien-Sammlung.

NORWEGJA (NORVÈGE).

145. Bergen. Bergens Museum.
146. Tromsø. Tromsø Museum.
147. Trondhjem. Kgl. Norske Videnskabers Selskab.

NOWA ZELANDJA (NOUVELLE ZÉELANDE).

148. Christchurch. The Canterbury Museum.

PORTUGALJA (PORTUGAL).

149. Coimbra. Museu Zoológico da Universidade.
150. Lisboa. Sociedade Portuguesa de Ciências Naturais.

RUMUNJA (ROMANIE).

151. Bucuresti. Academia Română.
152. Jasi. Société des Médecins et Naturalistes de Jassy.

STANY ZJEDNOCZONE A. P. (ÉTATS UNIS A. N.).

153. Albany N. Y. New York State Library.
154. Ann Arbor, Mich. Museum of Zoology of the University of Michigan.
155. Berkeley, Calif. University of California.
156. Boston, Mass. The Cambridge Entomological Club.
157. Brooklyn, N. Y. Museum of the Brooklyn Institute of Arts and Sciences.
158. Cambridge, Mass. Museum of Comparative Zoology at Harvard University.

159. Chicago, Ill. Field Museum of Natural History.
160. " The John Crerar Library.
161. Lawrence, Kansas. University of Kansas.
162. Minneapolis, Minn. University of Minnesota.
163. New Haven, Conn. The Connecticut Agricultural Experiment Station.
164. New York, City. The New York Zoological Society.
165. Philadelphia, Pa. The Academy of Natural Sciences.
166. Sitka, Alaska. The Alaska Agricultural Experiment Station.
167. Washington, D. C. Bureau of Biological Survey, U. S. Department of Agriculture.
168. " Bureau of Entomology, U. S. Department of Agriculture.
169. " National Park Service, U. S. Department of the Interior.
170. " Entomological Society of Washington.
171. " The Smithsonian Institution.
172. " U. S. Geological Survey.
173. " U. S. National Herbarium.
174. " U. S. National Museum.

SZWAJCARJA (SUISSE).

175. Basel. Naturforschende Gesellschaft in Basel.
176. " Ornithologische Gesellschaft in Basel.
177. Bern. Inspection Fédérale des Forêts, Chasse et Pêche.
178. " Schweizerische Naturforschende Gesellschaft.
179. " Städtisches Naturhistorisches Museum.
180. Frauenfeld. Thurgauische Naturforschende Gesellschaft.
181. Fribourg. Société Fribourgeoise des Sciences Naturelles.
182. Genève. Muséum d'Histoire Naturelle.
183. " Société de Physique et d'Histoire Naturelle.
184. Lausanne. Musée d'Histoire Naturelle de Lausanne.
185. " Société Vaudoise des Sciences Naturelles.
186. Sankt Gallen. Naturwissenschaftliche Gesellschaft.
187. Solothurn. Naturforschende Gesellschaft Solothurn.
188. Winterthur. Naturwissenschaftliche Gesellschaft.
189. Zürich. Naturforschende Gesellschaft in Zürich.
190. " Zoologisch-vergleichend-anatomisches Institut der Universität.

SZWECJA (SUÈDE).

191. Stockholm. Entomologiska Föreningen.
192. " K. Vetenskaps Akademien.
193. Uppsala. Universitetsbiblioteket.
194. " Universitets Zoologiska Institutionen.

WĘGRY (HONGRIE).

195. Budapest. Magyar Nemzeti Múzeum.

WŁOCHY (ITALIE).

196. Cagliari. Istituto di Zoologia della R. Università.
197. Ferrara. Accademia delle Scienze Mediche e Naturali di Ferrara.
198. Firenze. R. Stazione Entomologica Agraria.
199. Genova. Museo Civico di Storia Naturale „Giacomo Doria“.
200. Milano. Istituto di Anatomia Comparata della R. Università.
201. Napoli. Museo Zoologico della R. Università.
202. „ Stazione Zoologica di Napoli.
203. Padova. Accademia Scientifica Veneto-Trentino-Istria.
204. Roma. Institut International d'Agriculture.
205. „ Istituto di Zoologia della R. Università.
206. Rovigo d'Istria. Istituto di Biologia Marina.
207. Sassari. Istituto di Zoologia e Anatomia Comparata della R. Università.
208. Torino. Musei di Zoologia ed Anatomia Comparata della R. Università.

ZWIĄZEK SOCJALISTYCZNYCH REPUBLIK RAD (UNION DES RÉPUBLIQUES SOCIALISTES SOVIÉTIQUES).

209. Leningrad. Institut Zootomique de l'Université.
210. „ Musée Zoologique de l'Académie des Sciences.
211. „ Rédaction de la Revue „La Défense des Plantes“.
212. „ Société Russe d'Entomologie.
213. Perm. Institut des Recherches Biologiques à l'Université de Perm.
214. Saratow. Biologische Wolga-Station.

SKŁAD OSOBOWY
POLSKIEGO PAŃSTWOWEGO MUZEUM PRZYRODNICZEGO.
PERSONNEL DU MUSÉE POLONAIS D'HISTOIRE NATURELLE.

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Wicedyrektor (Vice-directeur): **Jan Sztolcman.**

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Kustosz działu zwierząt bezkręgowych, oprócz owadów (Conservateur de la section des Invertébrés, exc. les Insectes):

Docent Dr. Władysław Poliński.

Kustosz działu entomologicznego (Conservateur de la section entomologique): **Dr. Tadeusz Jaczewski.**

Pomocnik Kustosza (Assistant): **Jerzy Kremky.**

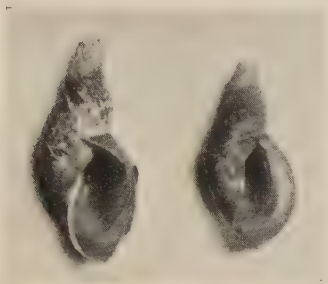
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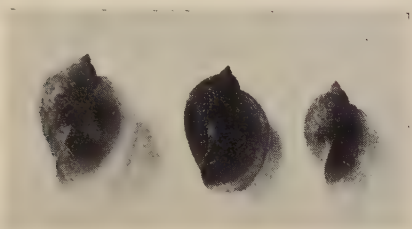
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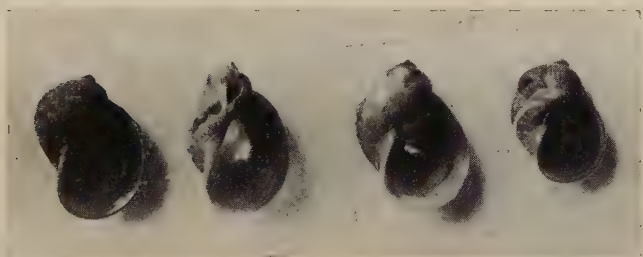
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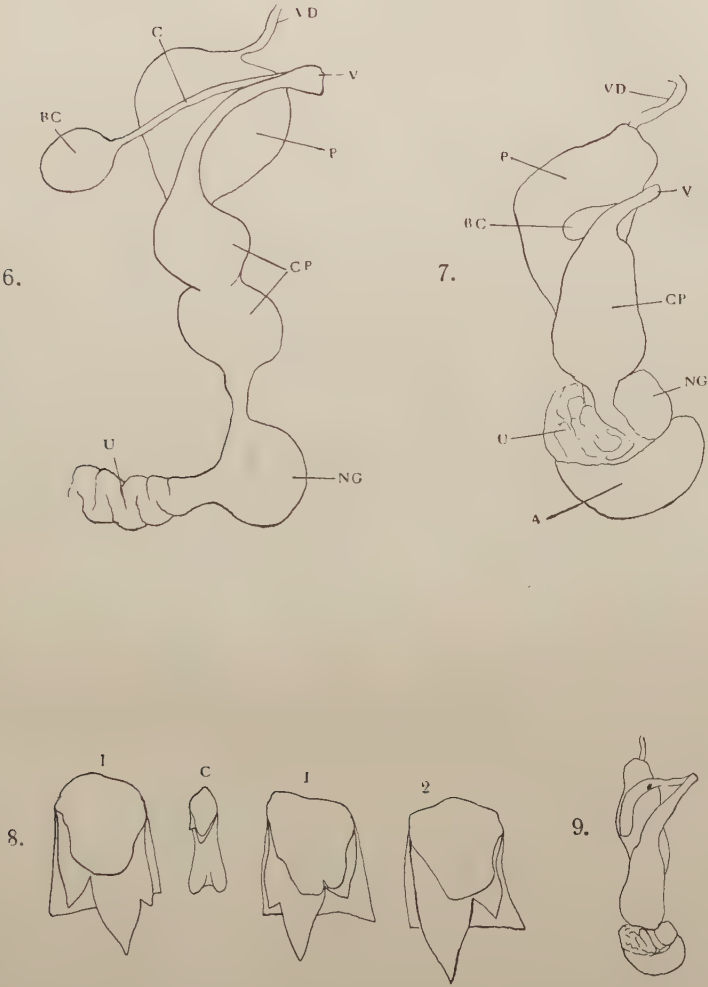


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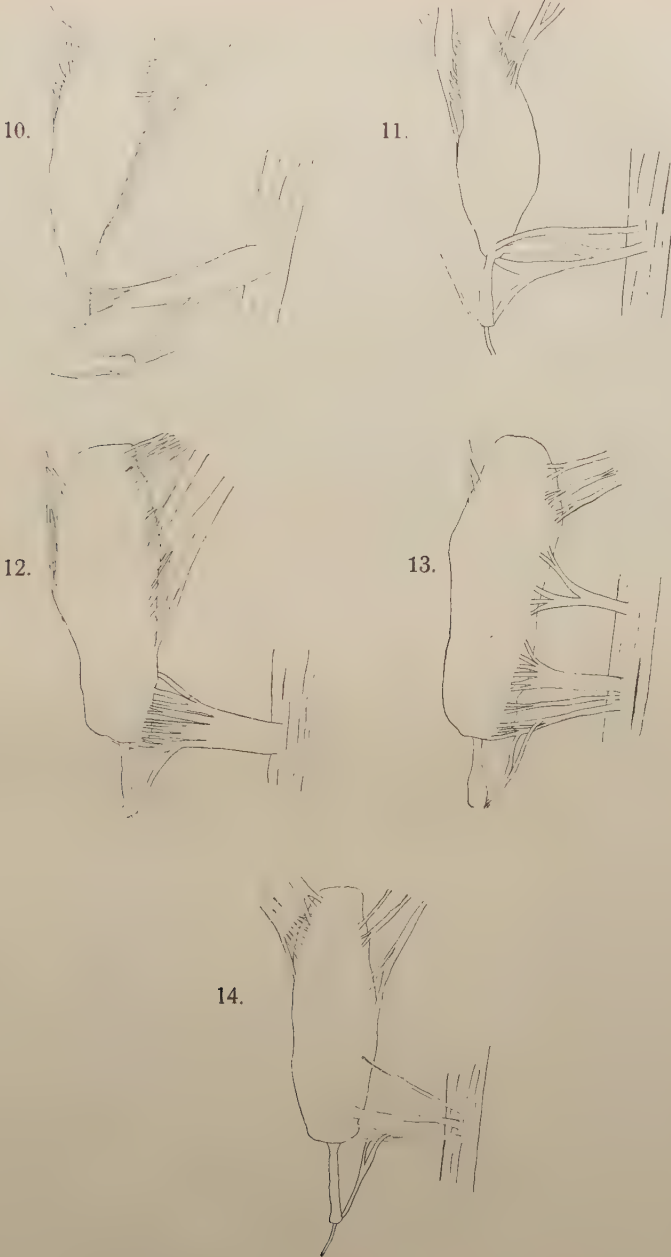


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W. Roszkowski.



W. Roszkowski.





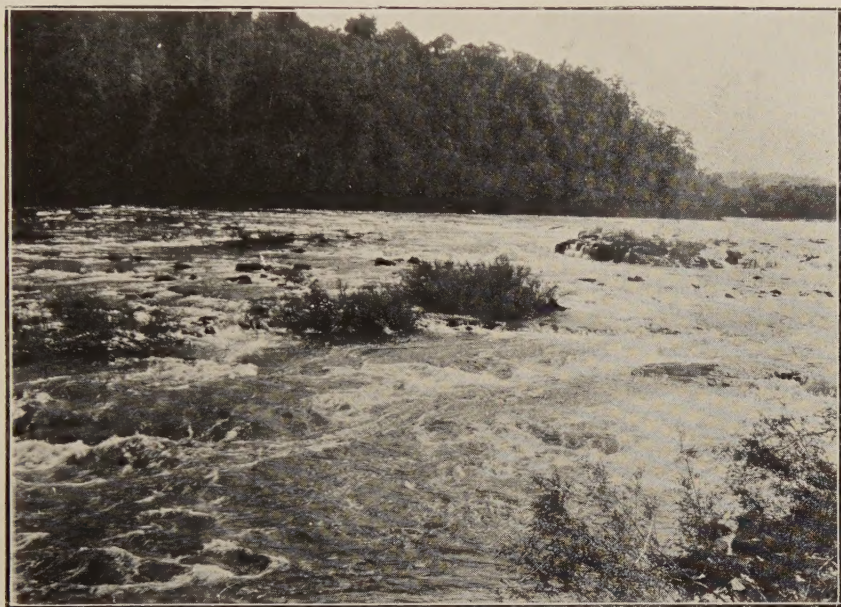
1. A „fachinal“ in the Paraná-highland not far from Curityba.



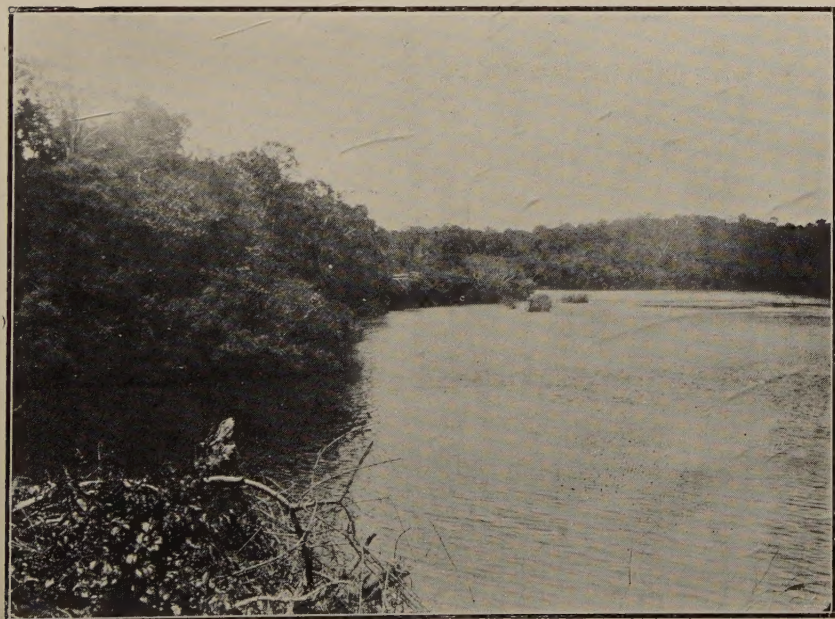
2. The pond of Bacachery near Curityba.



3. The „taquará“ - undergrowth in a forest in the neighbourhoods of Marechal Mallet.



4. The upper part of the Salto da Ariranha on the Rio Ivahy.



5. The confluence of the Rio Bom (to the left) with the Rio Ivahy.

